

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                             |              |
|-----------------------------|--------------|
| <b>C Number:</b>            | C04502       |
| <b>Lock Date:</b>           | Not Entered. |
| <b>Cage Range:</b>          | All          |
| <b>Date Range:</b>          | All          |
| <b>Reasons For Removal:</b> | All          |
| <b>Removal Date Range:</b>  | All          |
| <b>Treatment Groups:</b>    | All          |
| <b>Study Gender:</b>        | Both         |
| <b>PWG Approval Date</b>    | 01/29/1990   |

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 1

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Lung                     | Mammary Gland              | Nose                    | Pancreas                  |
| Parathyroid Gland        | Pituitary Gland            | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Stomach - Forestomach   | Stomach - Glandular       |
| Thymus                   | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**MISSING**

Lymph Node - Mandibular

**OBSERVATIONS**

|                                 |                           |                       |                     |
|---------------------------------|---------------------------|-----------------------|---------------------|
| Adrenal Gland                   | Medulla                   | Hyperplasia           | Mild                |
| Heart                           | Artery                    | Cardiomyopathy        | Mild                |
|                                 |                           | Necrosis              | Fibrinoid, Mild     |
| Islets, Pancreatic              |                           | Adenoma               |                     |
| Kidney                          |                           | Nephropathy           | Mild                |
| Liver                           |                           | Basophilic Focus      |                     |
|                                 |                           | Clear Cell Focus      |                     |
|                                 | Bile Duct                 | Hyperplasia           | Mild                |
| Lymph Node                      | Mesenteric                | Infiltration Cellular | Histiocyte, Minimal |
|                                 | Mesenteric                | Pigmentation          | Minimal             |
| Note: INFILTRAT CELL TGLs = 5-8 |                           |                       |                     |
| Mesentery                       | Fat                       | Necrosis              | Mild                |
| Note: NECROSIS TGLs = 3-14      |                           |                       |                     |
| Skin                            | Subcut Tiss               | Fibroma               |                     |
| Note: FIBROMA TGLs = 1-13       |                           |                       |                     |
| Spleen                          |                           | Infiltration Cellular | Histiocyte, Minimal |
|                                 |                           | Pigmentation          | Hemosiderin, Mild   |
| Testes                          | Bilateral, Interstit Cell | Adenoma               |                     |
|                                 | Seminif Tub               | Atrophy               | Mild                |
| Note: ADENOMA TGLs = 2-6        |                           |                       |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                     |                           |                                 |                         |
|---------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 1 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 744 |
|                     | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                               |   |
|-------------------------------|---|
| <b>PRIMARY CAUSE OF DEATH</b> | - |
|-------------------------------|---|

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 2                      **TRT#:** 1                      **SEX:** Male                      **DAY ON TEST:** 722  
**DOSE:** VEHICLE 79VM                      **DISP:** Dead                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Lymph Node - Mesenteric   | Mammary Gland            | Nose                       | Parathyroid Gland       |
| Preputial Gland           | Salivary Glands          | Seminal Vesicle            | Stomach - Forestomach   |
| Stomach - Glandular       | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

**OBSERVATIONS**

|                                   |                           |                                  |                     |
|-----------------------------------|---------------------------|----------------------------------|---------------------|
| Heart                             |                           | Cardiomyopathy                   | Mild                |
| Kidney                            |                           | Nephropathy                      | Mild                |
| Liver                             |                           | Basophilic Focus                 |                     |
|                                   | Bile Duct                 | Hyperplasia                      | Mild                |
| Lymph Node                        | Mediastinal               | Infiltration Cellular            | Histiocyte, Minimal |
|                                   | Mediastinal               | Pigmentation                     | Minimal             |
| Pancreas                          | Acinus                    | Hyperplasia                      | Moderate            |
| Pituitary Gland                   | Pars Distalis             | Hyperplasia                      | Mild                |
| Prostate                          | Epithelium                | Hyperplasia                      | Minimal             |
| Skin                              | Subcut Tiss               | Fibroma                          |                     |
| Note: FIBROMA      TGLs = 1-13    |                           |                                  |                     |
| Spleen                            |                           | Hematopoietic Cell Proliferation | Mild                |
|                                   |                           | Hemorrhage                       | Mild                |
|                                   |                           | Infiltration Cellular            | Histiocyte, Mild    |
|                                   |                           | Pigmentation                     | Hemosiderin, Mild   |
| Testes                            | Bilateral, Interstit Cell | Adenoma                          |                     |
| Note: ADENOMA      TGLs = 3-6,4-6 |                           |                                  |                     |

**PRIMARY CAUSE OF DEATH**                      -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

|                     |   |                                       |  |
|---------------------|---|---------------------------------------|--|
| <b>ANIMAL ID:</b> 3 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Dead | <b>DAY ON TEST:</b> 550<br><b>HISTO:</b> |
|---------------------|---|---------------------------------------|--|

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |           |                         |
|----------------------------|-------------------------|-----------|-------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone      | Bone Marrow             |
| Brain                      | Epididymis              | Esophagus | Intestine Large - Colon |
| Intestine Small - Duodenum | Islets, Pancreatic      | Kidney    | Lymph Node - Mandibular |
| Mammary Gland              | Nose                    | Pancreas  | Parathyroid Gland       |
| Pituitary Gland            | Preputial Gland         | Prostate  | Salivary Glands         |
| Seminal Vesicle            | Skin                    | Spleen    | Stomach - Forestomach   |
| Thymus                     | Thyroid Gland           | Trachea   | Urinary Bladder         |

AUTO PRECLUDES DIAG.

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Stomach - Glandular     |                          |                         |                           |

OBSERVATIONS

|                               |                           |                       |                  |
|-------------------------------|---------------------------|-----------------------|------------------|
| Heart                         |                           | Cardiomyopathy        | Mild             |
| Liver                         |                           | Fatty Change          | Focal, Moderate  |
| Lung                          |                           | Congestion            | Moderate         |
| Note: CONGESTION TGLs = 2-1+2 |                           |                       |                  |
| Lymph Node                    | Mesenteric                | Infiltration Cellular | Histiocyte, Mild |
| Testes                        | Bilateral, Interstit Cell | Adenoma               |                  |
| Note: ADENOMA TGLs = 3-6      |                           |                       |                  |

|                        |   |
|------------------------|---|
| PRIMARY CAUSE OF DEATH | - |
|------------------------|---|

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

|                     |   |   |  |
|---------------------|---|---|--|
| <b>ANIMAL ID:</b> 5 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 744<br><b>HISTO:</b> |
|---------------------|---|---|--|

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mesenteric    | Mammary Gland           | Nose                      |
| Pancreas                 | Parathyroid Gland          | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Skin                    | Stomach - Forestomach     |
| Stomach - Glandular      | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

OBSERVATIONS

|                                |                           |                         |                         |
|--------------------------------|---------------------------|-------------------------|-------------------------|
| Adrenal Gland                  | Bilateral, Medulla        | Pheochromocytoma Benign |                         |
| Heart                          |                           | Cardiomyopathy          | Mild                    |
| Kidney                         |                           | Nephropathy             | Moderate                |
| Liver                          | Bile Duct                 | Basophilic Focus        |                         |
|                                |                           | Hyperplasia             | Mild                    |
|                                |                           | Mixed Cell Focus        |                         |
| Lung                           |                           | Infiltration Cellular   | Histiocyte, Mild        |
| Note: THICK FIBROUS PLEURA     |                           |                         |                         |
| Lymph Node                     | Mandibular                | Infiltration Cellular   | Histiocyte, Minimal     |
|                                | Mandibular                | Pigmentation            | Minimal                 |
| Mesentery                      | Fat                       | Inflammation            | Chronic Active, Minimal |
| Note: INFLAMMATION TGLs = 2-13 |                           |                         |                         |
| Pituitary Gland                | Pars Distalis             | Adenoma                 |                         |
|                                | Pars Distalis             | Angiectasis             | Mild                    |
| Note: ADENOMA TGLs = 4-8       |                           |                         |                         |
| Spleen                         |                           | Infiltration Cellular   | Histiocyte, Minimal     |
|                                |                           | Pigmentation            | Hemosiderin, Mild       |
| Testes                         | Bilateral, Interstit Cell | Adenoma                 |                         |
| Note: ADENOMA TGLs = 1-6       |                           |                         |                         |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                     |   |   |  |
|---------------------|---|---|--|
| <b>ANIMAL ID:</b> 7 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 738<br><b>HISTO:</b> |
|---------------------|---|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Mammary Gland             | Nose                     | Pancreas                   | Parathyroid Gland       |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Testes                  |
| Thymus                    | Trachea                  | Urinary Bladder            |                         |

**OBSERVATIONS**

|                                 |               |                                  |                     |
|---------------------------------|---------------|----------------------------------|---------------------|
| Heart                           |               | Cardiomyopathy                   | Moderate            |
| Intest Large                    |               |                                  |                     |
| Note: LYMPHOID TISSUE IN CECUM  |               |                                  |                     |
| Kidney                          |               | Nephropathy                      | Moderate            |
| Liver                           |               | Basophilic Focus                 |                     |
| Lymph Node                      | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal |
|                                 | Mesenteric    | Infiltration Cellular            | Histiocyte, Minimal |
|                                 | Mediastinal   | Pigmentation                     | Minimal             |
|                                 | Mesenteric    | Pigmentation                     | Minimal             |
| Note: INFILTRAT CELL TGLs = 6-8 |               |                                  |                     |
| Pituitary Gland                 | Pars Distalis | Adenoma                          |                     |
|                                 | Pars Distalis | Angiectasis                      | Mild                |
| Note: ADENOMA TGLs = 8-8        |               |                                  |                     |
| Spleen                          |               | Hematopoietic Cell Proliferation | Mild                |
|                                 |               | Pigmentation                     | Hemosiderin, Mild   |
| Thyroid Gland                   | C Cell        | Adenoma                          |                     |
|                                 | C Cell        | Hyperplasia                      | Minimal             |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 8                      **TRT#:** 1                      **SEX:** Male                      **DAY ON TEST:** 745  
**DOSE:** VEHICLE 79VM                      **DISP:** Terminal Sacrifice                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Bone                      | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Nose                     | Parathyroid Gland          | Pituitary Gland         |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

**MISSING**

|                    |               |          |
|--------------------|---------------|----------|
| Islets, Pancreatic | Mammary Gland | Pancreas |
|--------------------|---------------|----------|

**OBSERVATIONS**

|   |             |                            |          |
|---|-------------|----------------------------|----------|
| Adrenal Gland                                 | Medulla     | Hyperplasia                | Minimal  |
|   | Cortex      | Leukemia Mononuclear       |          |
|   | Medulla     | Leukemia Mononuclear       |          |
|   | Medulla     | Pheochromocytoma Malignant |          |
| Note: [ PHEOCHROM MAL ] TGLs = 8-8.1          |             |                            |          |
| Bone Marrow                                   |             | Leukemia Monocytic         |          |
| Brain   |             | Leukemia Mononuclear       |          |
| Heart   |             | Cardiomyopathy             | Mild     |
|   |             | Leukemia Mononuclear       |          |
| Kidney  |             | Leukemia Mononuclear       |          |
|   |             | Nephropathy                | Mild     |
| Liver   | Bile Duct   | Hyperplasia                | Moderate |
|   |             | Leukemia Mononuclear       |          |
| Note: [ LEUKEMIA MONUC ] TGLs = 9-3           |             |                            |          |
| Lung  |             | Leukemia Mononuclear       |          |
| Lymph Node                                    | Mandibular  | Leukemia Mononuclear       |          |
|   | Mediastinal | Leukemia Mononuclear       |          |
|   | Mesenteric  | Leukemia Mononuclear       |          |
| Note: [ LEUKEMIA MONUC ] TGLs = 1-9,6-2.1,7-8 |             |                            |          |
| Spleen  |             | Leukemia Mononuclear       |          |
| Note: [ LEUKEMIA MONUC ] TGLs = 2-3.1         |             |                            |          |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                     |   |   |  |
|---------------------|---|---|--|
| <b>ANIMAL ID:</b> 8 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 745<br><b>HISTO:</b> |
|---------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |  |                      |      |
|---|--|----------------------|------|
| Testes<br>Note: ADENOMA TGLs = 3-6,4-6          | Bilateral, Interstit Cell<br>Seminif Tub | Adenoma<br>Atrophy   | Mild |
| Thymus<br>Note: [ LEUKEMIA MONUC ] TGLs = 5-2.1 |  | Leukemia Mononuclear |      |
| Thyroid Gland                                   | C Cell                                   | Adenoma              |      |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

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 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:26  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

|              |                               |                                       |                            |
|--------------|-------------------------------|---------------------------------------|----------------------------|
| ANIMAL ID: 9 | TRT#: 1<br>DOSE: VEHICLE 79VM | SEX: Male<br>DISP: Terminal Sacrifice | DAY ON TEST: 739<br>HISTO: |
|--------------|-------------------------------|---------------------------------------|----------------------------|

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Mammary Gland           | Parathyroid Gland         | Preputial Gland          | Prostate                   |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

**OBSERVATIONS**

|                              |                           |                       |                     |
|------------------------------|---------------------------|-----------------------|---------------------|
| Kidney                       | Artery                    | Necrosis              | Fibrinoid, Mild     |
|                              | Renal Tubule              | Nephropathy           | Mild                |
| Liver                        |                           | Pigmentation          | Minimal             |
|                              |                           | Basophilic Focus      |                     |
|                              |                           | Clear Cell Focus      |                     |
| Lymph Node                   | Bile Duct                 | Hyperplasia           | Mild                |
|                              | Mesenteric                | Infiltration Cellular | Histiocyte, Mild    |
|                              | Mandibular                | Pigmentation          | Minimal             |
|                              | Mesenteric                | Pigmentation          | Mild                |
| Nose                         |                           | Inflammation          | Acute, Minimal      |
| Pancreas                     | Acinus                    | Hyperplasia           | Mild                |
| Pituitary Gland              | Pars Distalis             | Hyperplasia           | Mild                |
| Note: HYPERPLASIA TGLs = 7-8 |                           |                       |                     |
| Spleen                       |                           | Infiltration Cellular | Histiocyte, Minimal |
|                              |                           | Pigmentation          | Hemosiderin, Mild   |
| Testes                       | Bilateral, Interstit Cell | Adenoma               |                     |
|                              | Seminif Tub               | Atrophy               | Mild                |
| Note: ADENOMA TGLs = 1-6,2-6 |                           |                       |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:26  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 10                      TRT#: 1                      SEX: Male                      DAY ON TEST: 745  
 DOSE: VEHICLE 79VM                      DISP: Terminal Sacrifice                      HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Bone                       | Bone Marrow             | Brain                     | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Mammary Gland              | Nose                    | Pancreas                  | Parathyroid Gland        |
| Preputial Gland            | Salivary Glands         | Seminal Vesicle           | Skin                     |
| Trachea                    | Urinary Bladder         |                           |                          |

MISSING

Thymus

OBSERVATIONS

|                                 |            |                            |                      |          |
|---------------------------------|------------|----------------------------|----------------------|----------|
| Adrenal Gland                   | Cortex     | Hyperplasia                | Mild                 |          |
|                                 | Medulla    | Hyperplasia                | Mild                 |          |
|                                 | Cortex     | Leukemia Mononuclear       |                      |          |
|                                 | Medulla    | Leukemia Mononuclear       |                      |          |
|                                 | Medulla    | Pheochromocytoma Benign    |                      |          |
| Heart                           |            | Cardiomyopathy             | Mild                 |          |
|                                 |            | Leukemia Mononuclear       |                      |          |
| Kidney                          |            | Leukemia Mononuclear       |                      |          |
|                                 |            | Nephropathy                | Mild                 |          |
|                                 |            | Hyperplasia                | Mild                 |          |
| Liver                           | Bile Duct  | Leukemia Mononuclear       |                      |          |
|                                 |            | [ Hyperplasia TGLS = 4-3 ] |                      |          |
|                                 |            | Lung                       | Leukemia Mononuclear |          |
|                                 |            | Lymph Node                 | Leukemia Mononuclear |          |
| Pituitary Gland                 | Mandibular | Leukemia Mononuclear       |                      |          |
|                                 |            | Mediastinal                | Leukemia Mononuclear |          |
|                                 |            | Mesenteric                 | Leukemia Mononuclear |          |
|                                 |            | Pars Distalis              | Hyperplasia          | Moderate |
|                                 |            | Leukemia Mononuclear       |                      |          |
| Note: HYPERPLASIA    TGLs = 5-8 |            |                            |                      |          |
| Prostate                        | Epithelium | Hyperplasia                | Mild                 |          |
| Spleen                          |            | Leukemia Mononuclear       |                      |          |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 10 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 745<br><b>HISTO:</b> |
|----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |   |  |                     |
|---|---|--|---------------------|
| [ Leukemia Mononuclear TGLS = 3-3.1 ]                                 |   |  |                     |
| Stomach   | Forestomach<br>Forestomach<br>Glandular         | Acanthosis<br>Hyperkeratosis<br>Leukemia Mononuclear | Moderate<br>Mild    |
| Note: [ ACANTHOSIS ] TGLs = 6-8<br>Note: MORE LIKE A SESSILE PAPILOMA |   |  |                     |
| Testes  | Interstit Cell<br>Seminif Tub<br>Interstit Cell | Adenoma<br>Atrophy<br>Hyperplasia                    | Moderate<br>Minimal |
| Note: ADENOMA TGLs = 2-6<br>Note: ATROPHY TGLs = 1-6                  |   |  |                     |
| Thyroid Gland   | C Cell  | Hyperplasia  | Minimal             |
| PRIMARY CAUSE OF DEATH  | -   |  |                     |

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 11

TRT#: 1

SEX: Male

DAY ON TEST: 659

DOSE: VEHICLE 79VM

DISP: Dead

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Harderian Gland  
Liver  
Pancreas  
Prostate  
Spleen  
Thyroid Gland

Adrenal Gland - Medulla  
Epididymis  
Intestine Small - Duodenum  
Lymph Node - Mandibular  
Parathyroid Gland  
Salivary Glands  
Stomach - Forestomach  
Trachea

Bone  
Esophagus  
Islets, Pancreatic  
Lymph Node - Mesenteric  
Pituitary Gland  
Seminal Vesicle  
Stomach - Glandular  
Urinary Bladder

Bone Marrow  
Eye  
Kidney  
Nose  
Preputial Gland  
Skin  
Thymus

**MISSING**

Mammary Gland

**AUTO PRECLUDES DIAG.**

Intestine Large - Cecum  
Intestine Small - Jejunum

Intestine Large - Colon

Intestine Large - Rectum

Intestine Small - Ileum

**OBSERVATIONS**

Heart  
Lung  
Note: CONGESTION    TGLs = 4-1+2  
Testes  
Note: ADENOMA        TGLs = 3-6

Bilateral, Interstit Cell

Cardiomyopathy  
Congestion  
Adenoma

Moderate  
Marked

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 13

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Nose                      | Pancreas                 | Parathyroid Gland          | Pituitary Gland         |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

**OBSERVATIONS**

|                                   |                           |                       |                      |
|-----------------------------------|---------------------------|-----------------------|----------------------|
| Heart                             |                           | Cardiomyopathy        | Mild                 |
| Kidney                            |                           | Nephropathy           | Minimal              |
|                                   | Renal Tubule              | Pigmentation          | Minimal              |
| Liver                             |                           | Basophilic Focus      |                      |
|                                   |                           | Clear Cell Focus      |                      |
|                                   | Bile Duct                 | Hyperplasia           | Mild                 |
| Lymph Node                        | Mesenteric                | Infiltration Cellular | Histiocyte, Minimal  |
|                                   | Mesenteric                | Pigmentation          | Minimal              |
| Mammary Gland                     |                           | Fibroadenoma          |                      |
|                                   |                           |                       |                      |
| [ Fibroadenoma TGLS = 1-13+13.1 ] |                           |                       |                      |
| Spleen                            |                           | Infiltration Cellular | Histiocyte, Minimal  |
|                                   |                           | Pigmentation          | Hemosiderin, Minimal |
| Testes                            | Bilateral, Interstit Cell | Adenoma               |                      |
|                                   | Seminif Tub               | Atrophy               | Mild                 |

Note: ADENOMA TGLs = 3-6,4-6

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 15

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 578

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Bone                       | Bone Marrow             | Ear                       | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Mammary Gland           | Nose                      | Pancreas                 |
| Parathyroid Gland          | Pituitary Gland         | Preputial Gland           | Prostate                 |
| Salivary Glands            | Seminal Vesicle         | Stomach - Forestomach     | Stomach - Glandular      |
| Thymus                     | Thyroid Gland           | Trachea                   | Urinary Bladder          |

**OBSERVATIONS**

|   |                     |                       |                      |
|---|---------------------|-----------------------|----------------------|
| Adrenal Gland                                   | Medulla             | Hyperplasia           | Mild                 |
|   | Cortex              | Leukemia Mononuclear  |                      |
|   | Medulla             | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC                            | TGLs = 6-8          |                       |                      |
| Brain   |                     | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC                            | TGLs = 8-4,9-4,10-4 |                       |                      |
| Heart   |                     | Cardiomyopathy        | Mild                 |
|   |                     | Leukemia Mononuclear  |                      |
| [ Cardiomyopathy TGLS = 3-2 ]                   |                     |                       |                      |
| Kidney  |                     | Leukemia Mononuclear  |                      |
|   |                     | Nephropathy           | Minimal              |
| Liver   | Bile Duct           | Hyperplasia           | Mild                 |
|   |                     | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC                            | TGLs = 7-3          |                       |                      |
| Lung  |                     | Leukemia Mononuclear  |                      |
| [ Leukemia Mononuclear TGLS = 4-1+2 ]           |                     |                       |                      |
| Lymph Node                                      | Mesenteric          | Infiltration Cellular | Histiocyte, Mild     |
|   | Mediastinal         | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC                            | TGLs = 2-1          |                       |                      |
| Skin  |                     | Inflammation          | Chronic Active, Mild |
| Note: THIS IS MORE LIKE A MASS IN THE MESENTERY |                     |                       |                      |
| Note: INFLAMMATION                              | TGLs = 1-14         |                       |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                       |                         |
|----------------------|---------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 15 | <b>TRT#:</b> 1            | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 578 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                      |                |                      |
|----------------------|----------------|----------------------|
| Spleen               |                | Leukemia Mononuclear |
| Note: LEUKEMIA MONUC | TGLs = 5-3     |                      |
| Testes               | Interstit Cell | Adenoma              |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 17

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Mammary Gland           | Nose                      |
| Pancreas                 | Parathyroid Gland          | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Stomach - Forestomach   | Stomach - Glandular       |
| Thymus                   | Thyroid Gland              | Trachea                 | Urinary Bladder           |

OBSERVATIONS

|   |                |                                  |                     |
|---|----------------|----------------------------------|---------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 4-8   | Medulla        | Pheochromocytoma Benign          |                     |
| Heart   |                | Cardiomyopathy                   | Mild                |
| Kidney  |                | Nephropathy                      | Mild                |
|   | Renal Tubule   | Pigmentation                     | Minimal             |
| Liver   |                | Basophilic Focus                 |                     |
|   | Bile Duct      | Hyperplasia                      | Mild                |
| Lymph Node  | Mandibular     | Degeneration                     | Cystic, Mild        |
|   | Mediastinal    | Infiltration Cellular            | Histiocyte, Minimal |
|   | Mesenteric     | Infiltration Cellular            | Histiocyte, Mild    |
|   | Mediastinal    | Pigmentation                     | Minimal             |
| Note: DEGEN TGLs = 2-9<br>Note: INFILTRAT CELL TGLs = 5-8                                     |                |                                  |                     |
| Pituitary Gland<br>Note: GLANDULAR TISSUE IN PARS NERVOSA<br>Note: [ HYPERPLASIA ] TGLs = 7-8 | Pars Distalis  | Hyperplasia                      | Minimal             |
| Skin<br>Note: [ HYPERPLASIA ] TGLs = 1-14   |                | Hyperplasia                      | Squamous, Mild      |
| Spleen  |                | Hematopoietic Cell Proliferation | Mild                |
|   |                | Infiltration Cellular            | Histiocyte, Mild    |
|   |                | Pigmentation                     | Hemosiderin, Mild   |
| Testes  | Interstit Cell | Adenoma                          |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 17

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: ADENOMA TGLs = 3-6

Zymbal's Gland

Carcinoma

Note: CARCINOMA TGLs = 6-13+13.1

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 18

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mesenteric | Mammary Gland             |
| Nose                     | Parathyroid Gland          | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Stomach - Forestomach   | Stomach - Glandular       |
| Trachea                  | Urinary Bladder            |                         |                           |

MISSING

Thymus

OBSERVATIONS

|   |               |                         |                             |
|---|---------------|-------------------------|-----------------------------|
| Adrenal Gland   | Medulla       | Hyperplasia             | Mild                        |
|   | Medulla       | Pheochromocytoma Benign |                             |
| Note: PHEOCHROM BGN TGLs = 7-8                            |               |                         |                             |
| Heart   |               | Cardiomyopathy          | Moderate                    |
| Note: EXTENSIVE FIBROSIS<br>[ Cardiomyopathy TGLS = 4-2 ] |               |                         |                             |
| Kidney  | Papilla       | Mineralization          | Minimal                     |
|   |               | Nephropathy             | Mild                        |
|   | Renal Tubule  | Pigmentation            | Minimal                     |
| Liver   |               | Basophilic Focus        |                             |
| Lymph Node  | Mandibular    | Degeneration            | Cystic, Mild                |
|   | Mandibular    | Infiltration Cellular   | Plasma Cell, Mild           |
| Note: INFILTRAT CELL TGLs = 9-9                           |               |                         |                             |
| Pancreas  | Artery        | Inflammation            | Chronic Active, Minimal     |
| Pituitary Gland   | Pars Distalis | Adenoma                 |                             |
|   | Pars Distalis | Angiectasis             | Mild                        |
| Note: ADENOMA TGLs = 8-8                                  |               |                         |                             |
| Skin  |               | Carcinoma               | Metastatic (Zymbal'S Gland) |
|   |               | Keratoacanthoma         |                             |
| Note: [ KERATOACANTHMA ] TGLs = 1-14                      |               |                         |                             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 18 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 745 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                      |                           |                                  |      |
|--------------------------------------|---------------------------|----------------------------------|------|
| Note: [ CARCINOMA ] TGLs = 2-13+13.1 |                           |                                  |      |
| Spleen                               |                           | Hematopoietic Cell Proliferation | Mild |
| Testes                               | Bilateral, Interstit Cell | Adenoma                          |      |
|                                      | Seminif Tub               | Atrophy                          | Mild |
|                                      | Interstit Cell            | Hyperplasia                      | Mild |
| Note: ADENOMA TGLs = 5-6             |                           |                                  |      |
| Thyroid Gland                        | C Cell                    | Adenoma                          |      |
| Zymbal's Gland                       |                           | Carcinoma                        |      |

Note: [ CARCINOMA ] TGLs = 2-13+13.1

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PRIMARY CAUSE OF DEATH -

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Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 19

TRT#: 1

SEX: Male

DAY ON TEST: 577

DOSE: VEHICLE 79VM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Mammary Gland            | Nose                       |
| Pancreas                | Parathyroid Gland         | Preputial Gland          | Prostate                   |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Spinal Cord                |
| Stomach - Glandular     | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

MISSING

Pituitary Gland

OBSERVATIONS

|  |                           |                         |                      |
|--|---------------------------|-------------------------|----------------------|
| Islets, Pancreatic                     |                           | Adenoma                 |                      |
| Note: ADENOMA                          | TGLs = 3-9                |                         |                      |
| Kidney                                 | Renal Tubule              | Nephropathy             | Mild                 |
|  |                           | Pigmentation            | Minimal              |
| Liver                                  |                           | Basophilic Focus        |                      |
|  |                           | Fatty Change            | Focal, Minimal       |
|  | Bile Duct                 | Hyperplasia             | Mild                 |
| Lung                                   |                           | Adenosquamous Carcinoma |                      |
| [ Adenosquamous Carcinoma TGLS = 2-1 ] |                           |                         |                      |
| Lymph Node                             | Mandibular                | Infiltration Cellular   | Histiocyte, Mild     |
|  | Mesenteric                | Infiltration Cellular   | Histiocyte, Minimal  |
|  | Mesenteric                | Pigmentation            | Minimal              |
| Note: INFILTRAT CELL                   | TGLs = 1-8                |                         |                      |
| Spleen                                 |                           | Infiltration Cellular   | Histiocyte, Mild     |
|  |                           | Pigmentation            | Hemosiderin, Minimal |
| Stomach                                | Forestomach               | Acanthosis              | Mild                 |
|  | Forestomach               | Hyperkeratosis          | Mild                 |
| Testes                                 | Bilateral, Interstit Cell | Adenoma                 |                      |
|  | Interstit Cell            | Hyperplasia             | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 19

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 577

**DOSE:** VEHICLE 79VM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 20

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                            |                         |                           |
|-------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                   | Epididymis                 | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   |
| Mammary Gland           | Nose                       | Parathyroid Gland       | Pituitary Gland           |
| Preputial Gland         | Salivary Glands            | Seminal Vesicle         | Skin                      |
| Stomach - Forestomach   | Stomach - Glandular        | Thymus                  | Trachea                   |
| Urinary Bladder         |                            |                         |                           |

**OBSERVATIONS**

|                                       |                           |                                  |                          |
|---------------------------------------|---------------------------|----------------------------------|--------------------------|
| Heart                                 |                           | Cardiomyopathy                   | Mild                     |
| Intestine Large                       | Rectum                    | Parasite                         | Minimal                  |
| Kidney                                |                           | Nephropathy                      | Mild                     |
| Liver                                 |                           | Basophilic Focus                 |                          |
|                                       |                           | Clear Cell Focus                 |                          |
| Pancreas                              | Artery                    | Inflammation                     | Chronic Active, Moderate |
| Note: [ INFLAMMATION ] TGLs = 4-9+9.1 |                           |                                  |                          |
| Prostate                              | Epithelium                | Hyperplasia                      | Mild                     |
| Spleen                                |                           | Hematopoietic Cell Proliferation | Mild                     |
| Testes                                | Bilateral, Interstit Cell | Adenoma                          |                          |
|                                       | Seminif Tub               | Atrophy                          | Mild                     |
|                                       | Interstit Cell            | Hyperplasia                      | Minimal                  |
| Note: ADENOMA TGLs = 2-6              |                           |                                  |                          |
| Thyroid Gland                         | C Cell                    | Adenoma                          |                          |
| Note: ADENOMA TGLs = 1-8              |                           |                                  |                          |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 22      **TRT#:** 1      **SEX:** Male      **DAY ON TEST:** 744  
**DOSE:** VEHICLE 79VM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                         |
|----------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Bone Marrow             |
| Brain                      | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular    | Mammary Gland           | Nose                      | Pancreas                |
| Parathyroid Gland          | Preputial Gland         | Prostate                  | Salivary Glands         |
| Seminal Vesicle            | Skin                    | Stomach - Forestomach     | Stomach - Glandular     |
| Thymus                     | Trachea                 | Urinary Bladder           |                         |

**OBSERVATIONS**

|                    |                           |                                  |                     |
|--------------------|---------------------------|----------------------------------|---------------------|
| Epididymis         |                           | Spermatocele                     |                     |
| Note: SPERMATOCELE | TGLs = 5-6                |                                  |                     |
| Heart              |                           | Cardiomyopathy                   | Mild                |
| Intestine Large    | Rectum                    | Parasite                         | Mild                |
| Kidney             |                           | Nephropathy                      | Mild                |
| Liver              |                           | Basophilic Focus                 |                     |
|                    |                           | Fatty Change                     | Focal, Minimal      |
| Lung               |                           | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node         | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild    |
|                    | Mesenteric                | Pigmentation                     | Mild                |
| Pituitary Gland    | Pars Distalis             | Angiectasis                      | Minimal             |
|                    | Pars Distalis             | Hyperplasia                      | Minimal             |
| Spleen             |                           | Hematopoietic Cell Proliferation | Mild                |
|                    |                           | Infiltration Cellular            | Histiocyte, Mild    |
|                    |                           | Pigmentation                     | Hemosiderin, Mild   |
| Testes             | Bilateral, Interstit Cell | Adenoma                          |                     |
|                    | Seminif Tub               | Atrophy                          | Mild                |
|                    | Interstit Cell            | Hyperplasia                      | Mild                |
| Note: ADENOMA      | TGLs = 4-6                |                                  |                     |
| Thyroid Gland      | C Cell                    | Adenoma                          |                     |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 23

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 717

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Bone                    | Brain                     | Epididymis               | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Mammary Gland            | Nose                       |
| Parathyroid Gland       | Preputial Gland           | Prostate                 | Salivary Glands            |
| Seminal Vesicle         | Skin                      | Stomach - Forestomach    | Stomach - Glandular        |
| Trachea                 | Urinary Bladder           |                          |                            |

**MISSING**

Pituitary Gland

**OBSERVATIONS**

|                          |             |                      |                |
|--------------------------|-------------|----------------------|----------------|
| Adrenal Gland            | Medulla     | Hyperplasia          | Minimal        |
|                          | Cortex      | Leukemia Mononuclear |                |
|                          | Medulla     | Leukemia Mononuclear |                |
| Bone Marrow              |             | Leukemia Mononuclear |                |
| Heart                    |             | Leukemia Mononuclear |                |
| Islets, Pancreatic       |             | Adenoma              |                |
| Kidney                   |             | Leukemia Mononuclear |                |
|                          |             | Nephropathy          | Mild           |
| Liver                    |             | Fatty Change         | Focal, Minimal |
|                          | Bile Duct   | Hyperplasia          | Mild           |
|                          |             | Leukemia Mononuclear |                |
| Lung                     |             | Leukemia Mononuclear |                |
| Note: [ LEUKEMIA MONUC ] |             |                      |                |
|                          |             |                      |                |
| Lymph Node               | Axillary    | Leukemia Mononuclear |                |
|                          | Mandibular  | Leukemia Mononuclear |                |
|                          | Mediastinal | Leukemia Mononuclear |                |
|                          | Mesenteric  | Leukemia Mononuclear |                |
|                          | Pancreatic  | Leukemia Mononuclear |                |
| Note: [ LEUKEMIA MONUC ] |             |                      |                |
|                          |             |                      |                |
| Note: [ LEUKEMIA MONUC ] |             |                      |                |
|                          |             |                      |                |
| Note: [ LEUKEMIA MONUC ] |             |                      |                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:26

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

**ANIMAL ID:** 23

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 717

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |                           |                      |      |
|---|---------------------------|----------------------|------|
| Note: [ LEUKEMIA MONUC ] TGLs = 10-7+8          |                           |                      |      |
| Pancreas  |                           | Leukemia Mononuclear |      |
| Sem Ves   |                           |                      |      |
| Note: LEUKEMIC INFILTRATE                       |                           |                      |      |
| Spleen  |                           | Fibrosis             | Mild |
|   |                           | Leukemia Mononuclear |      |
| Note: [ FIBROSIS ] TGLs = 8-3.1                 |                           |                      |      |
| Note: [ LEUKEMIA MONUC ] TGLs = 8-3+3.1,9-3+3.1 |                           |                      |      |
| Testes  | Bilateral, Interstit Cell | Adenoma              |      |
|   | Seminif Tub               | Atrophy              | Mild |
|   | Interstit Cell            | Hyperplasia          | Mild |
| Note: ADENOMA TGLs = 6-6                        |                           |                      |      |
| Thymus  |                           | Leukemia Mononuclear |      |
| Note: [ LEUKEMIA MONUC ] TGLs = 4-2.1           |                           |                      |      |
| Thyroid Gland                                   |                           | Leukemia Mononuclear |      |

**PRIMARY CAUSE OF DEATH** -

Animal Note: NEOPLASM IN THIS RAT IS CALLED AS LYMPHOCYTIC  
Animal Note: RATHER THAN MONONUCLEAR CELL LEUKEMIA BECAUSE  
Animal Note: OF MONOTONOUS POPULATION OF ROUND CELLS AND  
Animal Note: A STARRY-SKIED PATTERN IN ALL LYMPH NODES

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 24                      **TRT#:** 1                      **SEX:** Male                      **DAY ON TEST:** 647  
**DOSE:** VEHICLE 79VM                      **DISP:** Moribund                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                            |
|---------------------------|-------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex    | Bone                    | Brain                    | Epididymis                 |
| Esophagus                 | Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     | Parathyroid Gland          |
| Preputial Gland           | Prostate                | Salivary Glands          | Seminal Vesicle            |
| Skin                      | Stomach - Forestomach   | Stomach - Glandular      | Testes                     |
| Trachea                   | Urinary Bladder         |                          |                            |

**OBSERVATIONS**

|   |                      |                       |                     |
|---|----------------------|-----------------------|---------------------|
| Adrenal Gland                                       | Medulla              | Hyperplasia           | Minimal             |
| Bone Marrow   |                      | Leukemia Mononuclear  |                     |
| Heart   |                      | Cardiomyopathy        | Mild                |
| Intestine Large                                     | Colon, Lymphoid Tiss | Leukemia Mononuclear  |                     |
| Intestine Small                                     | Ileum, Lymphoid Tiss | Leukemia Mononuclear  |                     |
| Kidney  |                      | Nephropathy           | Mild                |
|   | Renal Tubule         | Pigmentation          | Mild                |
| Liver   |                      | Fatty Change          | Diffuse, Mild       |
|   | Bile Duct            | Hyperplasia           | Mild                |
|   |                      | Leukemia Mononuclear  |                     |
| Lung  |                      | Infiltration Cellular | Histiocyte, Minimal |
|   |                      | Leukemia Mononuclear  |                     |
| Lymph Node  | Mandibular           | Leukemia Mononuclear  |                     |
|   | Mediastinal          | Leukemia Mononuclear  |                     |
|   | Mesenteric           | Leukemia Mononuclear  |                     |
|   | Pancreatic           | Leukemia Mononuclear  |                     |
| Note: MAST CELLS STAIN POSITIVE WITH TOLUIDINE BLUE |                      |                       |                     |
| Note: LEUKEMIA MONUC TGLs = 2-9                     |                      |                       |                     |
| Mammary Gland                                       |                      | Galactocele           |                     |
| Pancreas  |                      | Leukemia Mononuclear  |                     |
| Pituitary Gland                                     | Pars Distalis        | Adenoma               |                     |
|   | Pars Distalis        | Angiectasis           | Moderate            |
| Spleen  |                      | Leukemia Mononuclear  |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 24

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 647

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: MORE LIKE SARCOMA OR LYMPHOCYTIC LEUKEMIA

[ Leukemia Mononuclear TGLS = 1-3 ]

Thymus

Leukemia Mononuclear

Thyroid Gland

Follicular Cel

Adenoma

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 26

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Mammary Gland           | Nose                      | Pancreas                 |
| Parathyroid Gland          | Prostate                | Salivary Glands           | Seminal Vesicle          |
| Stomach - Forestomach      | Stomach - Glandular     | Thymus                    | Trachea                  |
| Urinary Bladder            |                         |                           |                          |

OBSERVATIONS

|   |                |                       |                     |
|---|----------------|-----------------------|---------------------|
| Adrenal Gland   | Medulla        | Hyperplasia           | Minimal             |
| Heart   |                | Cardiomyopathy        | Mild                |
| Intestine Large   | Colon          | Parasite              | Minimal             |
| Kidney  |                | Nephropathy           | Mild                |
| Liver   | Bile Duct      | Basophilic Focus      |                     |
|   |                | Hyperplasia           | Mild                |
|   |                | Leukemia Mononuclear  |                     |
| Lung  | Alveolar Epith | Hyperplasia           | Minimal             |
| Lymph Node  | Mediastinal    | Infiltration Cellular | Histiocyte, Minimal |
|   | Mesenteric     | Infiltration Cellular | Histiocyte, Mild    |
|   | Pancreatic     | Infiltration Cellular | Histiocyte, Mild    |
|   | Mediastinal    | Pigmentation          | Minimal             |
|   | Mesenteric     | Pigmentation          | Minimal             |
| Pituitary Gland   | Pars Distalis  | Adenoma               |                     |
| Note: ADENOMA TGLs = 3-8                                |                |                       |                     |
| Note: ACIDOPHIL ADENOMA                                 |                |                       |                     |
| Preputial Gland   |                | Adenoma               |                     |
| Note: ADENOMA TGLs = 2-10                               |                |                       |                     |
| Skin  | Subcut Tiss    | Fibrosarcoma          |                     |
| Note: THIS IS A MASS IN THE SUB CUTIS. NO OCULAR TISSUE |                |                       |                     |
| Note: FIBROSARC TGLs = 1-13                             |                |                       |                     |
| Note: IS RECOGNIZABLE                                   |                |                       |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 26 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 744 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|  |                |   |                  |
|--|----------------|---|------------------|
| Spleen   |                | Infiltration Cellular<br>Leukemia Mononuclear | Histiocyte, Mild |
| Note: SUGGESTION OF LEUKEMIA IN LIVER AND SPLEEN |                |   |                  |
| Testes   | Interstit Cell | Adenoma                                       |                  |
| Thyroid Gland                                    | C Cell         | Adenoma                                       |                  |
|  | C Cell         | Hyperplasia                                   | Minimal          |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 27

TRT#: 1

SEX: Male

DAY ON TEST: 739

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Nose                      | Parathyroid Gland        | Pituitary Gland            | Preputial Gland         |
| Prostate                  | Salivary Glands          | Seminal Vesicle            | Skin                    |
| Stomach - Forestomach     | Stomach - Glandular      | Thymus                     | Thyroid Gland           |
| Trachea                   | Urinary Bladder          |                            |                         |

MISSING

|               |        |
|---------------|--------|
| Mammary Gland | Spleen |
|---------------|--------|

OBSERVATIONS

|            |                           |                       |                  |
|------------|---------------------------|-----------------------|------------------|
| Heart      |                           | Cardiomyopathy        | Mild             |
| Kidney     |                           | Nephropathy           | Mild             |
|            | Renal Tubule              | Pigmentation          | Minimal          |
| Liver      |                           | Basophilic Focus      |                  |
|            |                           | Clear Cell Focus      |                  |
| Lymph Node | Mesenteric                | Infiltration Cellular | Histiocyte, Mild |
| Pancreas   | Acinus                    | Hyperplasia           | Moderate         |
| Testes     | Bilateral, Interstit Cell | Adenoma               |                  |
|            | Seminif Tub               | Atrophy               | Mild             |

Note: ADENOMA TGLs = 1-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 29

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Mammary Gland             |
| Nose                     | Parathyroid Gland          | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Skin                    | Stomach - Forestomach     |
| Stomach - Glandular      | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

**OBSERVATIONS**

|                                 |                           |                                  |                     |
|---------------------------------|---------------------------|----------------------------------|---------------------|
| Adrenal Gland                   | Medulla                   | Hyperplasia                      | Minimal             |
| Heart                           |                           | Cardiomyopathy                   | Mild                |
| Kidney                          |                           | Nephropathy                      | Mild                |
|                                 | Renal Tubule              | Pigmentation                     | Mild                |
| Liver                           |                           | Basophilic Focus                 |                     |
|                                 |                           | Clear Cell Focus                 |                     |
|                                 |                           | Hepatodiaphragmatic Nodule       |                     |
| Note: ANOM HEPAT LOB TGLs = 4-3 |                           |                                  |                     |
| Lymph Node                      | Mediastinal               | Infiltration Cellular            | Histiocyte, Minimal |
|                                 | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild    |
|                                 | Mediastinal               | Pigmentation                     | Minimal             |
|                                 | Mesenteric                | Pigmentation                     | Minimal             |
| Pancreas                        | Acinus                    | Hyperplasia                      | Mild                |
| Pituitary Gland                 |                           | Cyst                             |                     |
| Note: CYST TGLs = 3-8           |                           |                                  |                     |
| Spleen                          |                           | Hematopoietic Cell Proliferation | Mild                |
| Testes                          | Bilateral, Interstit Cell | Adenoma                          |                     |
|                                 | Seminif Tub               | Atrophy                          | Mild                |
|                                 | Interstit Cell            | Hyperplasia                      | Mild                |
| Note: ADENOMA TGLs = 1-6,2-6    |                           |                                  |                     |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 30

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Lymph Node - Mesenteric | Nose                      | Pancreas                 |
| Preputial Gland            | Salivary Glands         | Seminal Vesicle           | Stomach - Forestomach    |
| Stomach - Glandular        | Thymus                  | Thyroid Gland             | Trachea                  |
| Urinary Bladder            |                         |                           |                          |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|                                 |               |                            |                   |
|---------------------------------|---------------|----------------------------|-------------------|
| Adrenal Gland                   | Medulla       | Hyperplasia                | Mild              |
| Heart                           |               | Cardiomyopathy             | Mild              |
| Intestine Large                 | Colon         | Parasite                   | Minimal           |
| Kidney                          |               | Nephropathy                | Mild              |
|                                 | Renal Tubule  | Pigmentation               | Minimal           |
| Liver                           |               | Basophilic Focus           |                   |
|                                 |               | Hepatodiaphragmatic Nodule |                   |
| Note: ANOM HEPAT LOB TGLs = 9-3 |               |                            |                   |
| Lung                            |               | Congestion                 | Moderate          |
| [ Congestion TGLS = 5-1+2 ]     |               |                            |                   |
| Lymph Node                      | Pancreatic    | Infiltration Cellular      | Plasma Cell, Mild |
| Note: INFILTRAT CELL TGLs = 8-9 |               |                            |                   |
| Mammary Gland                   |               | Fibroadenoma               |                   |
|                                 |               | Galactocele                |                   |
| Note: FIBROADENOMA TGLs = 3-14  |               |                            |                   |
| Note: GALACTOCELE TGLs = 2-10   |               |                            |                   |
| Pituitary Gland                 | Pars Distalis | Adenoma                    |                   |
|                                 | Pars Distalis | Angiectasis                | Moderate          |
| Note: ADENOMA TGLs = 10-8       |               |                            |                   |
| Prostate                        | Epithelium    | Hyperplasia                | Mild              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 30 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 744<br><b>HISTO:</b> |
|----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |   |   |                                      |
|---|---|---|--------------------------------------|
| Skin  |   | Cyst Epithelial Inclusion<br>Keratoacanthoma                          |                                      |
| Note: COULS AS WELL BE AN IN SITU CARCINOMA<br>Note: [ KERATOACANTHMA ] TGLs = 1-13 |   |   |                                      |
| Spleen  |   | Fibrosis<br>Hematopoietic Cell Proliferation<br>Infiltration Cellular | Moderate<br>Mild<br>Histiocyte, Mild |
| Note: [ FIBROSIS ] TGLs = 7-3   |   |   |                                      |
| Testes  | Interstit Cell<br>Seminif Tub<br>Interstit Cell | Adenoma<br>Atrophy<br>Hyperplasia                                     | Mild<br>Mild                         |
| Note: ADENOMA TGLs = 4-6  |   |   |                                      |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 33

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mesenteric    |
| Mammary Gland           | Nose                      | Parathyroid Gland        | Prostate                   |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Trachea                   | Urinary Bladder          |                            |

**MISSING**

|                         |        |
|-------------------------|--------|
| Lymph Node - Mandibular | Thymus |
|-------------------------|--------|

**OBSERVATIONS**

|                      |                                     |                      |          |
|----------------------|-------------------------------------|----------------------|----------|
| Kidney               |                                     | Nephropathy          | Mild     |
| Liver                |                                     | Basophilic Focus     |          |
|                      | Bile Duct                           | Hyperplasia          | Mild     |
|                      |                                     | Leukemia Mononuclear |          |
| Note: LEUKEMIA MONUC | TGLs = 7-3,8-3.1                    |                      |          |
| Lung                 |                                     | Leukemia Mononuclear |          |
| Note: LEUKEMIA MONUC | TGLs = 3-1+2                        |                      |          |
| Lymph Node           | Mediastinal                         | Leukemia Mononuclear |          |
| Note: LEUKEMIA MONUC | TGLs = 2-2                          |                      |          |
| Pancreas             | Acinus                              | Hyperplasia          | Moderate |
| Pituitary Gland      | Pars Distalis                       | Adenoma              |          |
| Preputial Gland      |                                     | Adenoma              |          |
| Note: ADENOMA        | TGLs = 1-10                         |                      |          |
| Spleen               |                                     | Leukemia Mononuclear |          |
|                      | [ Leukemia Mononuclear TGLS = 5-3 ] |                      |          |
| Testes               | Bilateral, Interstit Cell           | Adenoma              |          |
|                      | Seminif Tub                         | Atrophy              | Mild     |
|                      | Interstit Cell                      | Hyperplasia          | Minimal  |
| Note: ADENOMA        | TGLs = 4-6                          |                      |          |
| Thyroid Gland        | C Cell                              | Adenoma              |          |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:26

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

---

**ANIMAL ID:** 33

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 34

TRT#: 1

SEX: Male

DAY ON TEST: 605

DOSE: VEHICLE 79VM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Pancreas                 | Parathyroid Gland          | Pituitary Gland         | Preputial Gland           |
| Prostate                 | Salivary Glands            | Seminal Vesicle         | Skin                      |
| Stomach - Glandular      | Thymus                     | Trachea                 | Urinary Bladder           |

MISSING

Lymph Node - Mesenteric

OBSERVATIONS

|   |              |                                  |                             |
|---|--------------|----------------------------------|-----------------------------|
| Adrenal Gland<br>Note: HYPERPLASIA TGLs = 7-8 | Medulla      | Hyperplasia                      | Mild                        |
| Heart   |              | Cardiomyopathy                   | Mild                        |
| Kidney  | Cortex       | Mineralization                   | Mild                        |
|   | Papilla      | Mineralization                   | Mild                        |
|   |              | Nephropathy                      | Mild                        |
| Note: NEPHROPATHY TGLs = 9-4                  | Renal Tubule | Pigmentation                     | Minimal                     |
| Liver   |              | Basophilic Focus                 |                             |
|   |              | Fatty Change                     | Diffuse, Mild               |
| Lung  |              | Alveolar/Bronchiolar Carcinoma   |                             |
|   |              | Carcinoma                        | Metastatic (Zymbal'S Gland) |
|   |              | Inflammation                     | Acute, Mild                 |
| [ Inflammation TGLS = 6-1+2 ]                 |              |                                  |                             |
| Nose<br>Note: NECROTIC DEBRIS IN NASAL CAVITY |              |                                  |                             |
| Spleen  |              | Hematopoietic Cell Proliferation | Mild                        |
|   |              | Infiltration Cellular            | Histiocyte, Mild            |
| Stomach                                       | Forestomach  | Acanthosis                       | Mild                        |
|   | Forestomach  | Hyperkeratosis                   | Mild                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 34

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 605

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                    |                  |                |              |                          |
|--------------------|------------------|----------------|--------------|--------------------------|
| Note: INFLAMMATION | TGLs = 11-7      | Forestomach    | Inflammation | Chronic Active, Moderate |
| Testes             |                  | Interstit Cell | Hyperplasia  | Mild                     |
| Thyroid Gland      |                  | C Cell         | Hyperplasia  | Mild                     |
| Zymbal's Gland     |                  |                | Carcinoma    |                          |
| Note: CARCINOMA    | TGLs = 4-13+13.1 |                |              |                          |

**PRIMARY CAUSE OF DEATH**

-

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 35

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Bone                    | Bone Marrow               | Epididymis               | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    |
| Lymph Node - Mesenteric | Mammary Gland             | Nose                     | Parathyroid Gland          |
| Prostate                | Salivary Glands           | Seminal Vesicle          | Skin                       |
| Stomach - Forestomach   | Stomach - Glandular       | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

MISSING

|                 |        |
|-----------------|--------|
| Preputial Gland | Thymus |
|-----------------|--------|

OBSERVATIONS

|                               |                |                        |         |
|-------------------------------|----------------|------------------------|---------|
| Adrenal Gland                 | Medulla        | Hyperplasia            | Minimal |
|                               | Cortex         | Leukemia Mononuclear   |         |
|                               | Medulla        | Leukemia Mononuclear   |         |
| Note: LEUKEMIA MONUC          | TGLs = 7-8     |                        |         |
| Brain                         |                | Leukemia Mononuclear   |         |
| Note: LEUKEMIA MONUC          | TGLs = 12-5    |                        |         |
| Heart                         |                | Leukemia Mononuclear   |         |
| Kidney                        |                | Leukemia Mononuclear   |         |
|                               |                | Nephropathy            | Mild    |
| Liver                         |                | Hepatocellular Adenoma |         |
|                               | Bile Duct      | Hyperplasia            | Mild    |
|                               |                | Infarct                | Marked  |
|                               |                | Leukemia Mononuclear   |         |
| Note: LEUKEMIA MONUC          | TGLs = 9-3+3.1 |                        |         |
| Note: [ HEPATOCLR ADEN ]      | TGLs = 11-3.1  |                        |         |
| [ Hyperplasia TGLS = 10-3.1 ] |                |                        |         |
| Lung                          |                | Hemorrhage             | Minimal |
|                               |                | Leukemia Mononuclear   |         |
| Note: LEUKEMIA MONUC          | TGLs = 2-1+2   |                        |         |
| Lymph Node                    | Mediastinal    | Leukemia Mononuclear   |         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 35 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 745<br><b>HISTO:</b> |
|----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |                           |                      |         |
|-------------------------------------|---------------------------|----------------------|---------|
| Note: LEUKEMIA MONUC TGLs = 3-2,5-9 | Pancreatic                | Leukemia Mononuclear |         |
| Pancreas                            | Acinus                    | Hyperplasia          | Mild    |
| Pituitary Gland                     | Pars Distalis             | Hyperplasia          | Minimal |
| Spleen                              |                           | Leukemia Mononuclear |         |
| [ Leukemia Mononuclear TGLS = 8-3 ] |                           |                      |         |
| Testes                              | Bilateral, Interstit Cell | Adenoma              |         |
| Note: ADENOMA TGLs = 4-6            |                           | Leukemia Mononuclear |         |

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PRIMARY CAUSE OF DEATH

-

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Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 37

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mesenteric | Mammary Gland             |
| Pituitary Gland          | Salivary Glands            | Seminal Vesicle         | Stomach - Forestomach     |
| Stomach - Glandular      | Thymus                     | Trachea                 | Urinary Bladder           |

MISSING

Parathyroid Gland

OBSERVATIONS

|   |                           |                                  |                         |
|---|---------------------------|----------------------------------|-------------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 6-8   | Bilateral, Medulla        | Pheochromocytoma Benign          |                         |
| Heart   |                           | Cardiomyopathy                   | Mild                    |
| Kidney  |                           | Nephropathy                      | Moderate                |
| Liver   |                           | Basophilic Focus                 |                         |
| Lymph Node<br>Note: DEGEN TGLs = 3-9              | Bile Duct<br>Mandibular   | Hyperplasia<br>Degeneration      | Mild<br>Cystic, Mild    |
| Nose  |                           | Inflammation                     | Acute, Moderate         |
| Pancreas  | Artery                    | Inflammation                     | Chronic Active, Minimal |
| Preputial Gland<br>Note: INFLAMMATION TGLs = 2-10 |                           | Inflammation                     | Chronic Active, Mild    |
| Prostate<br>Note: MORE LIKE A MICROADENOMA        | Epithelium                | Hyperplasia                      | Moderate                |
| Skin<br>Note: PAPILLOMA SQUA TGLs = 1-13          |                           | Squamous Cell Papilloma          |                         |
| Spleen  |                           | Hematopoietic Cell Proliferation | Mild                    |
| Testes<br>Note: ADENOMA TGLs = 4-6                | Bilateral, Interstit Cell | Adenoma                          |                         |
| Thyroid Gland                                     | C Cell                    | Adenoma                          |                         |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:26

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 37

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                       |                         |
|----------------------|---------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 38 | <b>TRT#:</b> 1            | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 579 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Mammary Gland             | Nose                     | Pancreas                   | Parathyroid Gland       |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Testes                  |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |

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**OBSERVATIONS**

|                                 |               |                                  |                   |
|---------------------------------|---------------|----------------------------------|-------------------|
| Heart                           |               | Cardiomyopathy                   | Mild              |
| Kidney                          |               | Nephropathy                      | Mild              |
| Liver                           |               | Fatty Change                     | Diffuse, Moderate |
| Note: FATTY CHANGE TGLs = 4-3   |               |                                  |                   |
| Lymph Node                      | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild  |
| Note: INFILTRAT CELL TGLs = 3-8 |               |                                  |                   |
| Pituitary Gland                 | Pars Distalis | Adenoma                          |                   |
|                                 | Pars Distalis | Angiectasis                      | Moderate          |
| Note: ADENOMA TGLs = 5-8        |               |                                  |                   |
| Spleen                          |               | Hematopoietic Cell Proliferation | Mild              |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 39

TRT#: 1

SEX: Male

DAY ON TEST: 738

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Pancreas                | Parathyroid Gland         |
| Preputial Gland          | Prostate                   | Salivary Glands         | Seminal Vesicle           |
| Skin                     | Stomach - Glandular        | Thymus                  | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

MISSING

|               |      |                 |                       |
|---------------|------|-----------------|-----------------------|
| Mammary Gland | Nose | Pituitary Gland | Stomach - Forestomach |
|---------------|------|-----------------|-----------------------|

OBSERVATIONS

|  |                           |                                  |                     |
|--|---------------------------|----------------------------------|---------------------|
| Adrenal Gland                                    | Medulla                   | Hyperplasia                      | Minimal             |
| Heart  |                           | Cardiomyopathy                   | Mild                |
| Kidney   |                           | Nephropathy                      | Mild                |
|  | Renal Tubule              | Pigmentation                     | Minimal             |
| Liver  |                           | Basophilic Focus                 |                     |
|  |                           | Clear Cell Focus                 |                     |
|  | Bile Duct                 | Hyperplasia                      | Mild                |
| Lung   |                           | Hemorrhage                       | Minimal             |
|  |                           | Infiltration Cellular            | Histiocyte, Minimal |
| [ Hemorrhage TGLS = 6-2 ]                        |                           |                                  |                     |
| Lymph Node                                       | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL TGLs = 8-8                  |                           |                                  |                     |
| Mesentery  | Artery                    | Necrosis                         | Fibrinoid, Mild     |
| Pancreas   |                           |                                  |                     |
| Note: ARTERIAL WALL THICKENED AND APPEARS NORMAL |                           |                                  |                     |
| Spleen   |                           | Hematopoietic Cell Proliferation | Mild                |
| Stomach  |                           |                                  |                     |
| Note: WHICH APPEARS TO BE NORMAL                 |                           |                                  |                     |
| Note: A 'U-SHAPED' EXTENSION OF GLNDULAR STOMACH |                           |                                  |                     |
| Testes   | Bilateral, Interstit Cell | Adenoma                          |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 39 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                   |                |             |      |
|-----------------------------------|----------------|-------------|------|
|                                   | Seminif Tub    | Atrophy     | Mild |
|                                   | Interstit Cell | Hyperplasia | Mild |
| Note: ADENOMA      TGLs = 2-6,3-6 |                |             |      |
| Thyroid Gland                     | C Cell         | Adenoma     |      |

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PRIMARY CAUSE OF DEATH      -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 40

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                         |
|----------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                   |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lung                       | Lymph Node - Mandibular | Mammary Gland             | Nose                    |
| Pancreas                   | Parathyroid Gland       | Preputial Gland           | Prostate                |
| Salivary Glands            | Seminal Vesicle         | Skin                      | Stomach - Forestomach   |
| Stomach - Glandular        | Thymus                  | Trachea                   | Urinary Bladder         |

OBSERVATIONS

|                              |                           |                                  |                  |
|------------------------------|---------------------------|----------------------------------|------------------|
| Adrenal Gland                | Medulla                   | Hyperplasia                      | Mild             |
| Heart                        |                           | Cardiomyopathy                   | Mild             |
| Intestine Large              | Rectum                    | Parasite                         | Mild             |
| Kidney                       |                           | Nephropathy                      | Minimal          |
|                              | Renal Tubule              | Pigmentation                     | Minimal          |
| Liver                        |                           | Eosinophilic Focus               |                  |
|                              | Bile Duct                 | Hyperplasia                      | Mild             |
| Lymph Node                   | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild |
|                              | Mesenteric                | Pigmentation                     | Mild             |
| Pituitary Gland              | Pars Distalis             | Hyperplasia                      | Mild             |
| Spleen                       |                           | Hematopoietic Cell Proliferation | Mild             |
| Testes                       | Bilateral, Interstit Cell | Adenoma                          |                  |
|                              | Seminif Tub               | Atrophy                          | Mild             |
| Note: ADENOMA TGLs = 2-6,3-6 |                           |                                  |                  |
| Thyroid Gland                | Follicular Cel            | Carcinoma                        |                  |
| Note: CARCINOMA TGLs = 1-8.1 |                           |                                  |                  |

PRIMARY CAUSE OF DEATH

-

Animal Note: BLOOD AROUND THYMUS AND SALIVARY GLANDS

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 41 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 746 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                            |                         |                           |                         |
|----------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                   |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular    | Lymph Node - Mesenteric | Mammary Gland             | Nose                    |
| Parathyroid Gland          | Preputial Gland         | Prostate                  | Salivary Glands         |
| Seminal Vesicle            | Skin                    | Spleen                    | Stomach - Forestomach   |
| Stomach - Glandular        | Thymus                  | Thyroid Gland             | Trachea                 |
| Urinary Bladder            |                         |                           |                         |

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**OBSERVATIONS**

|                 |                           |                         |         |
|-----------------|---------------------------|-------------------------|---------|
| Adrenal Gland   | Medulla                   | Pheochromocytoma Benign |         |
| Heart           |                           | Cardiomyopathy          | Mild    |
| Intestine Large | Rectum                    | Parasite                |         |
| Kidney          |                           | Nephropathy             | Mild    |
|                 | Renal Tubule              | Pigmentation            | Minimal |
| Liver           |                           | Basophilic Focus        |         |
|                 |                           | Eosinophilic Focus      |         |
| Lung            | Alveolar Epith            | Hyperplasia             | Minimal |
| Pancreas        | Acinus                    | Hyperplasia             | Mild    |
| Pituitary Gland | Pars Distalis             | Cyst                    |         |
| Testes          | Bilateral, Interstit Cell | Adenoma                 |         |
|                 | Seminif Tub               | Atrophy                 | Mild    |
|                 | Interstit Cell            | Hyperplasia             | Minimal |

Note: ADENOMA TGLs = 2-6

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 42

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Lymph Node - Mandibular  |
| Lymph Node - Mesenteric    | Pancreas                | Parathyroid Gland         | Pituitary Gland          |
| Prostate                   | Salivary Glands         | Seminal Vesicle           | Skin                     |
| Stomach - Forestomach      | Stomach - Glandular     | Thymus                    | Trachea                  |
| Urinary Bladder            |                         |                           |                          |

**OBSERVATIONS**

|   |             |                                  |                  |
|---|-------------|----------------------------------|------------------|
| Adrenal Gland                                 | Medulla     | Pheochromocytoma Benign          |                  |
| Note: PHEOCHROM BGN TGLs = 7-8                |             |                                  |                  |
| Brain   |             | Granular Cell Tumor Benign       |                  |
| Heart   |             | Cardiomyopathy                   | Mild             |
| Islets, Pancreatic                            |             | Adenoma                          |                  |
| Note: ADENOMA TGLs = 6-9                      |             |                                  |                  |
| Note: TGL PROBABLY REFERS TO ISLET CELL TUMOR |             |                                  |                  |
| Kidney  |             | Nephropathy                      | Moderate         |
| Liver   |             | Basophilic Focus                 |                  |
|   |             | Hepatocellular Adenoma           |                  |
| Lung  |             | Alveolar/Bronchiolar Adenoma     |                  |
|   |             | Congestion                       | Mild             |
| [ Alveolar/Bronchiolar Adenoma TGLS = 4-1.1 ] |             |                                  |                  |
| [ Congestion TGLS = 8-1.1 ]                   |             |                                  |                  |
| Lymph Node                                    | Mediastinal | Infiltration Cellular            | Histiocyte, Mild |
|   | Mediastinal | Pigmentation                     | Minimal          |
| Mammary Gland                                 |             | Fibroadenoma                     |                  |
| Note: FIBROADENOMA TGLs = 1-13                |             |                                  |                  |
| Nose  |             | Inflammation                     | Acute, Mild      |
| Preputial Gland                               |             | Necrosis                         | Mild             |
| Note: NECROSIS TGLs = 2-10                    |             |                                  |                  |
| Spleen  |             | Hematopoietic Cell Proliferation | Mild             |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 42 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 746<br><b>HISTO:</b> |
|----------------------|---|---|--|

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| <b>ORGAN AND ACCOUNTABLE SITE STATUS</b> |  |                                   |                 |
|--|--|-----------------------------------|-----------------|
| Testes                                   | Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell | Adenoma<br>Atrophy<br>Hyperplasia | Mild<br>Minimal |
| Note: ADENOMA      TGLs = 5-6            |  |                                   |                 |
| Thyroid Gland                            | C Cell   | Hyperplasia                       | Mild            |
| Note: HYPERPLASIA      TGLs = 3-8        |  |                                   |                 |

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|                               |   |
|-------------------------------|---|
| <b>PRIMARY CAUSE OF DEATH</b> | - |
|-------------------------------|---|

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 44

TRT#: 1

SEX: Male

DAY ON TEST: 738

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Mammary Gland             |
| Nose                     | Parathyroid Gland          | Salivary Glands         | Seminal Vesicle           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    | Urinary Bladder         |                           |

OBSERVATIONS

|   |                           |                                  |                  |
|---|---------------------------|----------------------------------|------------------|
| Adrenal Gland                                       | Medulla                   | Pheochromocytoma Benign          |                  |
| Heart   |                           | Cardiomyopathy                   | Mild             |
| Kidney  | Renal Tubule              | Nephropathy                      | Moderate         |
| Note: NEPHROPATHY TGLs = 3-4                        |                           | Pigmentation                     | Minimal          |
| Liver   |                           | Basophilic Focus                 |                  |
|   |                           | Clear Cell Focus                 |                  |
|   |                           | Eosinophilic Focus               |                  |
| Note: PROBABLE NEOPLASTIC NODULE IN SECTION CIRCLED |                           |                                  |                  |
| Lymph Node  | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild |
| Note: INFILTRAT CELL TGLs = 4-8                     |                           |                                  |                  |
| Pancreas  | Acinus                    | Hyperplasia                      | Mild             |
| Pituitary Gland                                     | Pars Distalis             | Adenoma                          |                  |
|   | Pars Distalis             | Angiectasis                      | Mild             |
| Note: ADENOMA TGLs = 5-8                            |                           |                                  |                  |
| Preputial Gland                                     |                           | Necrosis                         | Mild             |
| Prostate  | Epithelium                | Hyperplasia                      | Mild             |
| Spleen  |                           | Hematopoietic Cell Proliferation | Mild             |
| Testes  | Bilateral, Interstit Cell | Adenoma                          |                  |
|   | Seminif Tub               | Atrophy                          | Mild             |
|   | Interstit Cell            | Hyperplasia                      | Mild             |
| Note: ADENOMA TGLs = 2-6                            |                           |                                  |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 44

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 46

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              | Parathyroid Gland       |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

**MISSING**

Pituitary Gland

**OBSERVATIONS**

|   |              |                      |              |
|---|--------------|----------------------|--------------|
| Heart                                       |              | Cardiomyopathy       | Mild         |
|   |              | Leukemia Mononuclear |              |
| Intest Large                                |              |                      |              |
| Note: MUCOSAL EPITHELIUM OF CECUM DRIED OUT |              |                      |              |
| Kidney                                      |              | Leukemia Mononuclear |              |
|   | Papilla      | Mineralization       | Minimal      |
|   |              | Nephropathy          | Mild         |
|   | Renal Tubule | Pigmentation         | Minimal      |
| Liver                                       |              | Basophilic Focus     |              |
|   |              | Clear Cell Focus     |              |
|   | Bile Duct    | Hyperplasia          | Mild         |
|   |              | Leukemia Mononuclear |              |
| Note: [ LEUKEMIA MONUC ] TGLs = 6-3         |              |                      |              |
| Lung  |              | Leukemia Mononuclear |              |
| Note: LEUKEMIA MONUC TGLs = 1-1+2           |              |                      |              |
| Lymph Node                                  | Mandibular   | Degeneration         | Cystic, Mild |
|   | Mesenteric   | Leukemia Mononuclear |              |
| Note: LEUKEMIA MONUC TGLs = 5-8.1           |              |                      |              |
| Nose  |              | Inflammation         | Acute, Mild  |
| Pancreas                                    | Acinus       | Hyperplasia          | Mild         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 46 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |                |                      |          |
|-------------------------------------|----------------|----------------------|----------|
| Spleen                              |                | Leukemia Mononuclear |          |
| [ Leukemia Mononuclear TGLS = 4-3 ] |                |                      |          |
| Testes                              | Interstit Cell | Adenoma              |          |
|                                     | Seminif Tub    | Atrophy              | Moderate |
|                                     | Interstit Cell | Hyperplasia          | Mild     |
| Note: ATROPHY                       | TGLs = 2-6     |                      |          |
| Note: ADENOMA                       | TGLs = 3-6     |                      |          |

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PRIMARY CAUSE OF DEATH

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**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 47

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           |
| Nose                      | Pancreas                 | Parathyroid Gland          | Prostate                |
| Salivary Glands           | Seminal Vesicle          | Skin                       | Stomach - Forestomach   |
| Stomach - Glandular       | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

**OBSERVATIONS**

|                 |                           |                       |                      |
|-----------------|---------------------------|-----------------------|----------------------|
| Heart           |                           | Cardiomyopathy        | Mild                 |
| Kidney          |                           | Nephropathy           | Mild                 |
| Liver           |                           | Basophilic Focus      |                      |
|                 |                           | Clear Cell Focus      |                      |
|                 |                           | Fatty Change          | Focal, Minimal       |
|                 |                           | Leukemia Mononuclear  |                      |
| Lung            | Alveolar Epith            | Hyperplasia           | Mild                 |
|                 |                           | Infiltration Cellular | Histiocyte, Minimal  |
| Lymph Node      | Mesenteric                | Infiltration Cellular | Histiocyte, Mild     |
|                 | Pancreatic                | Infiltration Cellular | Histiocyte, Mild     |
| Pituitary Gland | Pars Distalis             | Adenoma               |                      |
|                 | Pars Distalis             | Angiectasis           | Moderate             |
| Note: ADENOMA   | TGLs = 3-8                |                       |                      |
| Preputial Gland |                           | Inflammation          | Chronic Active, Mild |
| Spleen          |                           | Leukemia Mononuclear  |                      |
| Testes          | Bilateral, Interstit Cell | Adenoma               |                      |
|                 | Seminif Tub               | Atrophy               | Mild                 |
|                 | Interstit Cell            | Hyperplasia           | Minimal              |
| Note: ADENOMA   | TGLs = 1-6                |                       |                      |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 49

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Harderian Gland            |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Lung                     | Lymph Node - Mandibular    |
| Nose                    | Parathyroid Gland         | Preputial Gland          | Prostate                   |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

MISSING

Mammary Gland

OBSERVATIONS

|                       |                           |                                  |                  |
|-----------------------|---------------------------|----------------------------------|------------------|
| Eye                   | Lens                      | Cataract                         | Mild             |
| Note: CATARACT        | TGLs = 1-13               |                                  |                  |
| Heart                 |                           | Cardiomyopathy                   | Mild             |
| Islets, Pancreatic    |                           | Hyperplasia                      | Mild             |
| Kidney                | Papilla                   | Mineralization                   | Mild             |
|                       |                           | Nephropathy                      | Mild             |
|                       | Renal Tubule              | Pigmentation                     | Minimal          |
| Liver                 |                           | Basophilic Focus                 |                  |
|                       |                           | Clear Cell Focus                 |                  |
|                       |                           | Fatty Change                     | Focal, Minimal   |
|                       | Bile Duct                 | Hyperplasia                      | Mild             |
| Lymph Node            | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild |
| Pancreas              | Acinus                    | Hyperplasia                      | Mild             |
| Pituitary Gland       | Pars Distalis             | Hyperplasia                      | Mild             |
| Note: [ HYPERPLASIA ] | TGLs = 4-8                |                                  |                  |
| Spleen                |                           | Hematopoietic Cell Proliferation | Mild             |
| Testes                | Bilateral, Interstit Cell | Adenoma                          |                  |
| Note: ADENOMA         | TGLs = 2-6,3-6            |                                  |                  |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 49

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 51

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Epididymis                | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           |
| Nose                      | Pancreas                 | Preputial Gland            | Salivary Glands         |
| Seminal Vesicle           | Skin                     | Stomach - Forestomach      | Stomach - Glandular     |
| Thymus                    | Trachea                  | Urinary Bladder            |                         |

MISSING

|                   |          |
|-------------------|----------|
| Parathyroid Gland | Prostate |
|-------------------|----------|

OBSERVATIONS

|  |                           |                                  |                     |
|--|---------------------------|----------------------------------|---------------------|
| Adrenal Gland                          | Medulla                   | Hyperplasia                      | Mild                |
|  | Medulla                   | Pheochromocytoma Benign          |                     |
| Note: PHEOCHROM BGN TGLs = 7-8         |                           |                                  |                     |
| Kidney                                 |                           | Nephropathy                      | Moderate            |
| Liver                                  |                           | Basophilic Focus                 |                     |
|  | Bile Duct                 | Hyperplasia                      | Mild                |
| Lung                                   |                           | Congestion                       | Moderate            |
|  |                           | Infiltration Cellular            | Histiocyte, Minimal |
| [ Infiltration Cellular TGLs = 6-1+2 ] |                           |                                  |                     |
| Lymph Node                             | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild    |
| Pituitary Gland                        | Pars Distalis             | Hyperplasia                      | Mild                |
| Spleen                                 |                           | Hematopoietic Cell Proliferation | Mild                |
| Testes                                 | Bilateral, Interstit Cell | Adenoma                          |                     |
|  | Seminif Tub               | Atrophy                          | Mild                |
| Note: ADENOMA TGLs = 2-6,3-6,4-6       |                           |                                  |                     |
| Thyroid Gland                          | C Cell                    | Carcinoma                        |                     |
| Note: [ CARCINOMA ] TGLs = 5-8         |                           |                                  |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 52

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric | Nose                      |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Seminal Vesicle           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Trachea                  | Urinary Bladder            |                         |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |                           |                       |                     |
|--|---------------------------|-----------------------|---------------------|
| Adrenal Gland                                  | Medulla                   | Hyperplasia           | Mild                |
| Heart  |                           | Cardiomyopathy        | Mild                |
| Kidney   |                           | Nephropathy           | Mild                |
|  | Renal Tubule              | Pigmentation          | Mild                |
| Liver  |                           | Basophilic Focus      |                     |
|  |                           | Clear Cell Focus      |                     |
| Lung   |                           | Infiltration Cellular | Histiocyte, Minimal |
| Pituitary Gland                                | Pars Distalis             | Adenoma               |                     |
|  | Pars Distalis             | Angiectasis           | Mild                |
|  | Pars Distalis             | Hyperplasia           | Mild                |
| Note: PLASTIC ACIDOPHILS                       |                           |                       |                     |
| Note: PROMINENT NEGATIVE GOLGI IMAGE IN HYPER- |                           |                       |                     |
| Note: ADENOMA TGLs = 7-8                       |                           |                       |                     |
| Preputial Gland                                |                           | Necrosis              | Mild                |
| Note: NECROSIS TGLs = 1-10                     |                           |                       |                     |
| Prostate                                       | Epithelium                | Hyperplasia           | Mild                |
| Spleen   |                           | Fibrosis              | Mild                |
| Note: [ FIBROSIS ] TGLs = 5-3                  |                           |                       |                     |
| Testes   | Bilateral, Interstit Cell | Adenoma               |                     |
|  | Seminif Tub               | Atrophy               | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 52 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |                |             |         |
|---------------|----------------|-------------|---------|
| Note: ADENOMA | TGLs = 3-6,4-6 |             |         |
| Thyroid Gland | C Cell         | Hyperplasia | Minimal |

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|                               |   |
|-------------------------------|---|
| <b>PRIMARY CAUSE OF DEATH</b> | - |
|-------------------------------|---|

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                   |                         |
|----------------------|---------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 53 | <b>TRT#:</b> 1            | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 520 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric |
| Mammary Gland             | Nose                     | Pancreas                   | Parathyroid Gland       |
| Pituitary Gland           | Preputial Gland          | Prostate                   | Salivary Glands         |
| Seminal Vesicle           | Skin                     | Spleen                     | Stomach - Forestomach   |
| Stomach - Glandular       | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

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**OBSERVATIONS**

|                  |                |                |                  |
|------------------|----------------|----------------|------------------|
| Heart            |                | Cardiomyopathy | Mild             |
| Kidney           |                | Nephropathy    | Mild             |
| Liver            |                | Fatty Change   | Diffuse, Minimal |
|                  | Bile Duct      | Hyperplasia    | Mild             |
| Lung             |                | Hemorrhage     | Moderate         |
| Note: HEMORRHAGE | TGLs = 1-1+2   |                |                  |
| Testes           | Interstit Cell | Adenoma        |                  |
|                  | Interstit Cell | Hyperplasia    | Mild             |

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 55

TRT#: 1

SEX: Male

DAY ON TEST: 716

DOSE: VEHICLE 79VM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                         |                          |                            |
|-------------------------|-------------------------|--------------------------|----------------------------|
| Bone                    | Bone Marrow             | Epididymis               | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Islets, Pancreatic      | Nose                     | Pancreas                   |
| Parathyroid Gland       | Pituitary Gland         | Prostate                 | Salivary Glands            |
| Seminal Vesicle         | Skin                    | Stomach - Glandular      | Thyroid Gland              |
| Trachea                 | Urinary Bladder         |                          |                            |

MISSING

Mammary Gland

AUTO PRECLUDES DIAG.

Intestine Small - Jejunum

OBSERVATIONS

|                                       |              |                            |      |
|---------------------------------------|--------------|----------------------------|------|
| Adrenal Gland                         | Cortex       | Leukemia Mononuclear       |      |
|                                       | Medulla      | Leukemia Mononuclear       |      |
|                                       | Medulla      | Pheochromocytoma Benign    |      |
|                                       | Medulla      | Pheochromocytoma Malignant |      |
| Note: PHEOCHROM BGN                   | TGLs = 4-8   |                            |      |
| Note: LEUKEMIA MONUC                  | TGLs = 5-8   |                            |      |
| Brain                                 |              | Leukemia Mononuclear       |      |
| Note: LEUKEMIA MONUC                  | TGLs = 8-5   |                            |      |
| Heart                                 |              | Cardiomyopathy             | Mild |
|                                       |              | Leukemia Mononuclear       |      |
| Note: LEUKEMIA MONUC                  | TGLs = 2-2.1 |                            |      |
| Kidney                                |              | Leukemia Mononuclear       |      |
|                                       |              | Nephropathy                | Mild |
| Liver                                 |              | Leukemia Mononuclear       |      |
| [ Leukemia Mononuclear TGLS = 7-3 ]   |              |                            |      |
| Lung                                  |              | Leukemia Mononuclear       |      |
| [ Leukemia Mononuclear TGLS = 3-1+2 ] |              |                            |      |
| Lymph Node                            | Mandibular   | Leukemia Mononuclear       |      |
|                                       | Mediastinal  | Leukemia Mononuclear       |      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |                                       |  |
|----------------------|---|---------------------------------------|--|
| <b>ANIMAL ID:</b> 55 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Dead | <b>DAY ON TEST:</b> 716<br><b>HISTO:</b> |
|----------------------|---|---------------------------------------|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|  |                            |                                   |              |
|--|----------------------------|-----------------------------------|--------------|
| Preputial Gland<br>Note: CARCINOMA TGLs = 1-10.1 | Mesenteric                 | Leukemia Mononuclear<br>Carcinoma |              |
| Spleen<br>[ Leukemia Mononuclear TGLS = 6-3.1 ]  |                            | Leukemia Mononuclear              |              |
| Stomach<br>Note: ACANTHOSIS TGLs = 9-7           | Forestomach<br>Forestomach | Acanthosis<br>Hyperkeratosis      | Mild<br>Mild |
| Testes   | Interstit Cell             | Adenoma                           |              |
| Thymus   |                            | Leukemia Mononuclear              |              |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 56

TRT#: 1

SEX: Male

DAY ON TEST: 474

DOSE: VEHICLE 79VM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                         |
|----------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Bone Marrow             |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Nose                       | Pancreas                | Parathyroid Gland         | Pituitary Gland         |
| Preputial Gland            | Prostate                | Salivary Glands           | Seminal Vesicle         |
| Stomach - Glandular        | Thyroid Gland           | Trachea                   | Urinary Bladder         |

MISSING

|                          |               |      |
|--------------------------|---------------|------|
| Intestine Large - Rectum | Mammary Gland | Skin |
|--------------------------|---------------|------|

OBSERVATIONS

|                                     |                |                      |             |
|-------------------------------------|----------------|----------------------|-------------|
| Brain                               |                | Leukemia Mononuclear |             |
| Note: LEUKEMIA MONUC                | TGLs = 9-5     |                      |             |
| Heart                               |                | Leukemia Mononuclear |             |
| Kidney                              |                | Leukemia Mononuclear |             |
|                                     |                | Nephropathy          | Minimal     |
| Liver                               |                | Fatty Change         | Focal, Mild |
|                                     |                | Leukemia Mononuclear |             |
| Note: LEUKEMIA MONUC                | TGLs = 8-3     |                      |             |
| Lung                                |                | Leukemia Mononuclear |             |
| Note: LEUKEMIA MONUC                | TGLs = 1-1+2   |                      |             |
| Lymph Node                          | Mandibular     | Leukemia Mononuclear |             |
|                                     | Mediastinal    | Leukemia Mononuclear |             |
|                                     | Mesenteric     | Leukemia Mononuclear |             |
| Note: LEUKEMIA MONUC                | TGLs = 2-1,6-8 |                      |             |
| Spleen                              |                | Leukemia Mononuclear |             |
| [ Leukemia Mononuclear TGLS = 7-3 ] |                |                      |             |
| Stomach                             | Forestomach    | Acanthosis           | Minimal     |
|                                     | Forestomach    | Hemorrhage           | Minimal     |
|                                     | Forestomach    | Necrosis             | Mild        |
| Note: NECROSIS                      | TGLs = 10-7    |                      |             |
| Testes                              | Interstit Cell | Adenoma              |             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 56

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 474

**DOSE:** VEHICLE 79VM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: ADENOMA      TGLs = 3-6

Thymus

Leukemia Mononuclear

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 57

TRT#: 1

SEX: Male

DAY ON TEST: 670

DOSE: VEHICLE 79VM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Esophagus  
Lymph Node - Mesenteric  
Preputial Gland  
Skin  
Thymus

Bone Marrow  
Intestine Small - Ileum  
Mammary Gland  
Prostate  
Spleen  
Thyroid Gland

Brain  
Kidney  
Pancreas  
Salivary Glands  
Stomach - Forestomach  
Trachea

Epididymis  
Lymph Node - Mandibular  
Parathyroid Gland  
Seminal Vesicle  
Stomach - Glandular  
Urinary Bladder

AUTO PRECLUDES DIAG.

Intestine Large - Cecum  
Intestine Small - Jejunum

Intestine Large - Colon

Intestine Large - Rectum

Intestine Small - Duodenum

OBSERVATIONS

Adrenal Gland  
Bone

Medulla

Pheochromocytoma Benign  
Osteosarcoma

Note: OSTEOSARC TGLs = 1-13+13.1  
Note: OSTEOID SEAMS, HEMORRHAGE AND NECROSIS

Heart  
Islets, Pancreatic  
Liver

Cardiomyopathy  
Adenoma  
Basophilic Focus  
Necrosis

Moderate

Lung

Infiltration Cellular  
Osteosarcoma

Moderate  
Histiocyte, Moderate  
Metastatic (Bone)

Note: OSTEOSARC TGLs = 2-1+2,3-1+2

Nose

Fungus  
Inflammation

Mild  
Acute, Mild

Pituitary Gland

Pars Distalis  
Pars Distalis

Adenoma  
Angiectasis

Moderate

Note: ADENOMA TGLs = 6-8

Testes

Bilateral, Interstit Cell

Adenoma

Note: ADENOMA TGLs = 4-6,5-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 59

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   |
| Nose                     | Parathyroid Gland          | Prostate                | Salivary Glands           |
| Seminal Vesicle          | Skin                       | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    | Urinary Bladder         |                           |

MISSING

|               |                 |
|---------------|-----------------|
| Mammary Gland | Preputial Gland |
|---------------|-----------------|

OBSERVATIONS

|  |               |                                  |                  |
|--|---------------|----------------------------------|------------------|
| Adrenal Gland                                      | Medulla       | Hyperplasia                      | Mild             |
|  | Medulla       | Pheochromocytoma Benign          |                  |
| Note: HYPERPLASIA TGLs = 5-8                       |               |                                  |                  |
| Note: PHEOCHROM BGN TGLs = 6-8                     |               |                                  |                  |
| Heart  |               | Cardiomyopathy                   | Mild             |
| Kidney   | Renal Tubule  | Hyperplasia                      | Minimal          |
|  |               | Nephropathy                      | Moderate         |
|  | Renal Tubule  | Pigmentation                     | Mild             |
| Note: NEPHROPATHY TGLs = 7-4                       |               |                                  |                  |
| Note: POSSIBILITY OF AN ADENOMA WAS CONSIDERED FOR |               |                                  |                  |
| Note: THE FOCUS OF RENAL TUBULAR HYPERPLASIA.TWO   |               |                                  |                  |
| Note: MITOTIC FIGURES AND PILING OF CELLS(5).      |               |                                  |                  |
| Liver  |               | Basophilic Focus                 |                  |
| Pancreas   | Acinus        | Hyperplasia                      | Moderate         |
| Pituitary Gland                                    | Pars Distalis | Angiectasis                      | Mild             |
|  | Pars Distalis | Hyperplasia                      | Mild             |
| Note: HYPERPLASIA TGLs = 9-8                       |               |                                  |                  |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild             |
|  |               | Infiltration Cellular            | Histiocyte, Mild |
| Stomach  | Forestomach   | Acanthosis                       | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 59 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 744 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                   |                           |         |
|-----------------------------------|---------------------------|---------|
| Testes                            | Bilateral, Interstit Cell | Adenoma |
| Note: ADENOMA      TGLs = 3-6,4-6 |                           |         |

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 60

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Mammary Gland             | Nose                     | Pancreas                   | Salivary Glands         |
| Seminal Vesicle           | Skin                     | Spleen                     | Stomach - Forestomach   |
| Stomach - Glandular       | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|                                   |                           |                            |                  |
|-----------------------------------|---------------------------|----------------------------|------------------|
| Heart                             |                           | Cardiomyopathy             | Mild             |
| Kidney                            |                           | Nephropathy                | Mild             |
| Liver                             |                           | Basophilic Focus           |                  |
|                                   |                           | Hepatodiaphragmatic Nodule |                  |
| Note: ANOM HEPAT LOB TGLs = 5-3.1 |                           |                            |                  |
| Lymph Node                        | Mediastinal               | Degeneration               | Cystic, Mild     |
|                                   | Mesenteric                | Infiltration Cellular      | Histiocyte, Mild |
|                                   | Mesenteric                | Infiltration Cellular      | Mast Cell, Mild  |
| Note: DEGEN TGLs = 2-2            |                           |                            |                  |
| Pituitary Gland                   | Pars Distalis             | Adenoma                    |                  |
|                                   | Pars Distalis             | Angiectasis                | Mild             |
| Note: ADENOMA TGLs = 6-8          |                           |                            |                  |
| Preputial Gland                   |                           | Adenoma                    |                  |
| Note: ADENOMA TGLs = 1-10.1       |                           |                            |                  |
| Prostate                          | Epithelium                | Hyperplasia                | Mild             |
| Testes                            | Bilateral, Interstit Cell | Adenoma                    |                  |
| Note: ADENOMA TGLs = 3-6          |                           |                            |                  |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 61

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    | Parathyroid Gland         |
| Preputial Gland          | Prostate                   | Salivary Glands         | Seminal Vesicle           |
| Stomach - Forestomach    | Stomach - Glandular        | Thymus                  | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

**OBSERVATIONS**

|   |               |                         |                     |
|---|---------------|-------------------------|---------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 6-8                   | Medulla       | Pheochromocytoma Benign |                     |
| Heart   |               | Cardiomyopathy          | Mild                |
| Kidney  |               | Nephropathy             | Mild                |
|   | Renal Tubule  | Pigmentation            | Mild                |
| Liver   |               | Basophilic Focus        |                     |
|   |               | Clear Cell Focus        |                     |
|   |               | Fibrosis                | Mild                |
|   | Bile Duct     | Hyperplasia             | Moderate            |
|   |               | Pigmentation            | Mild                |
| Note: HYPERPLASIA TGLs = 11-3.1<br>Note: PIGMENT IS INTRACELLULAR |               |                         |                     |
| Lung  |               | Infiltration Cellular   | Histiocyte, Minimal |
| Lymph Node  | Mediastinal   | Infiltration Cellular   | Histiocyte, Mild    |
|   | Mesenteric    | Infiltration Cellular   | Histiocyte, Mild    |
| Note: INFILTRAT CELL TGLs = 7-13,10-8                             |               |                         |                     |
| Mammary Gland   |               | Galactocele             |                     |
| Note: [ GALACTOCELE ] TGLs = 4-13                                 |               |                         |                     |
| Pancreas  | Acinus        | Hyperplasia             | Mild                |
| Pituitary Gland   | Pars Distalis | Adenoma                 |                     |
|   | Pars Distalis | Angiectasis             | Moderate            |
| Note: ADENOMA TGLs = 12-8   |               |                         |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 61 | <b>TRT#:</b> 1<br><b>DOSE:</b> VEHICLE 79VM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|  |  |                                   |                 |
|--|--|-----------------------------------|-----------------|
| Skin<br>Note: FIBROMA TGLs = 1-14+14.1   | Subcut Tiss  | Fibroma                           |                 |
| Spleen   |  | Hematopoietic Cell Proliferation  | Mild            |
| Testes<br>Note: NEOPLASM IN ONE TESTIS COMPRISES OF DARK CELLS<br>Note: ADENOMA TGLs = 5-6 | Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell | Adenoma<br>Atrophy<br>Hyperplasia | Mild<br>Minimal |
| Thyroid Gland<br>Note: ADENOMA TGLs = 8-8  | C Cell   | Adenoma                           |                 |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 64 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Bone                      | Bone Marrow              | Brain                      |
| Epididymis              | Esophagus                 | Eye                      | Harderian Gland            |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Lymph Node - Mandibular | Lymph Node - Mesenteric   | Mammary Gland            | Nose                       |
| Pancreas                | Parathyroid Gland         | Preputial Gland          | Prostate                   |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

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**OBSERVATIONS**

|                                |                           |                                  |         |
|--------------------------------|---------------------------|----------------------------------|---------|
| Adrenal Gland                  | Medulla                   | Pheochromocytoma Benign          |         |
| Note: PHEOCHROM BGN TGLs = 4-8 |                           |                                  |         |
| Heart                          |                           | Cardiomyopathy                   | Mild    |
| Kidney                         |                           | Nephropathy                      | Minimal |
|                                | Renal Tubule              | Pigmentation                     | Minimal |
| Liver                          |                           | Basophilic Focus                 |         |
| Pituitary Gland                | Pars Distalis             | Hyperplasia                      | Mild    |
| Spleen                         |                           | Hematopoietic Cell Proliferation | Mild    |
| Testes                         | Bilateral, Interstit Cell | Adenoma                          |         |
|                                | Seminif Tub               | Atrophy                          | Mild    |
|                                | Interstit Cell            | Hyperplasia                      | Minimal |
| Note: ADENOMA TGLs = 2-6,3-6   |                           |                                  |         |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 65

TRT#: 1

SEX: Male

DAY ON TEST: 750

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Bone                     | Brain                      | Epididymis              | Esophagus                 |
| Eye                      | Harderian Gland            | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Lung                     | Lymph Node - Mandibular    | Lymph Node - Mesenteric | Nose                      |
| Pancreas                 | Parathyroid Gland          | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Skin                    | Spleen                    |
| Stomach - Forestomach    | Stomach - Glandular        | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            |                         |                           |

MISSING

Islets, Pancreatic

OBSERVATIONS

|                                   |                           |                            |         |
|-----------------------------------|---------------------------|----------------------------|---------|
| Adrenal Gland                     | Cortex                    | Hyperplasia                | Mild    |
|                                   | Bilateral, Medulla        | Pheochromocytoma Benign    |         |
| Note: PHEOCHROM BGN TGLs = 4-8    |                           |                            |         |
| Heart                             |                           | Cardiomyopathy             | Mild    |
| Kidney                            |                           | Nephropathy                | Mild    |
| Liver                             |                           | Basophilic Focus           |         |
|                                   |                           | Clear Cell Focus           |         |
|                                   |                           | Hepatodiaphragmatic Nodule |         |
|                                   | Bile Duct                 | Hyperplasia                | Mild    |
| Note: ANOM HEPAT LOB TGLs = 6-3.2 |                           |                            |         |
| Note: CLEAR CL FOCUS TGLs = 8-5   |                           |                            |         |
| Mammary Gland                     |                           | Fibroadenoma               |         |
| Note: FIBROADENOMA TGLs = 2-13    |                           |                            |         |
| Pituitary Gland                   | Pars Distalis             | Adenoma                    |         |
|                                   | Pars Distalis             | Hyperplasia                | Mild    |
| Testes                            | Bilateral, Interstit Cell | Adenoma                    |         |
|                                   | Seminif Tub               | Atrophy                    | Mild    |
|                                   | Interstit Cell            | Hyperplasia                | Minimal |
| Note: ADENOMA TGLs = 1-6          |                           |                            |         |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 65

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 66

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   | Nose                     |
| Parathyroid Gland          | Preputial Gland         | Prostate                  | Salivary Glands          |
| Seminal Vesicle            | Skin                    | Stomach - Forestomach     | Stomach - Glandular      |
| Trachea                    | Urinary Bladder         |                           |                          |

**OBSERVATIONS**

|                                       |                |                        |                  |
|---------------------------------------|----------------|------------------------|------------------|
| Adrenal Gland                         | Medulla        | Hyperplasia            | Minimal          |
| Heart                                 |                | Cardiomyopathy         | Mild             |
| Intestine Large                       | Colon          | Parasite               | Mild             |
| Kidney                                |                | Nephropathy            | Moderate         |
| Note: NEPHROPATHY TGLs = 5-4          |                |                        |                  |
| Liver                                 |                | Basophilic Focus       |                  |
|                                       |                | Cyst                   |                  |
|                                       |                | Hepatocellular Adenoma |                  |
| Note: CYST TGLs = 7-3                 |                |                        |                  |
| Note: [ HEPATOCLR ADEN ] TGLs = 6-3.1 |                |                        |                  |
| Mesentery                             | Fat            | Mineralization         | Mild             |
|                                       | Fat            | Necrosis               | Moderate         |
| Note: NECROSIS TGLs = 2-14            |                |                        |                  |
| Pancreas                              |                | Hyperplasia            | Moderate         |
| Note: [ HYPERPLASIA ] TGLs = 4-13     |                |                        |                  |
| Pituitary Gland                       | Pars Distalis  | Adenoma                |                  |
| Note: ADENOMA TGLs = 8-8              |                |                        |                  |
| Spleen                                |                | Depletion Lymphoid     | Mild             |
|                                       |                | Infiltration Cellular  | Histiocyte, Mild |
| [ Infiltration Cellular TGLs = 3-3 ]  |                |                        |                  |
| Testes                                | Interstit Cell | Adenoma                |                  |
|                                       | Interstit Cell | Hyperplasia            | Minimal          |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 66

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Thymus

Cyst

Thyroid Gland

C Cell

Adenoma

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                   |                         |
|----------------------|---------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 67 | <b>TRT#:</b> 1            | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 681 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                        |                         |                         |                            |
|------------------------|-------------------------|-------------------------|----------------------------|
| Adrenal Gland - Cortex | Adrenal Gland - Medulla | Bone                    | Bone Marrow                |
| Epididymis             | Esophagus               | Intestine Large - Colon | Intestine Small - Duodenum |
| Islets, Pancreatic     | Kidney                  | Lymph Node - Mandibular | Lymph Node - Mesenteric    |
| Mammary Gland          | Nose                    | Pancreas                | Parathyroid Gland          |
| Preputial Gland        | Prostate                | Salivary Glands         | Seminal Vesicle            |
| Skin                   | Stomach - Forestomach   | Stomach - Glandular     | Thyroid Gland              |
| Trachea                | Urinary Bladder         |                         |                            |

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**AUTO PRECLUDES DIAG.**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
|-------------------------|--------------------------|-------------------------|---------------------------|

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**OBSERVATIONS**

|  |                           |  |      |
|--|---------------------------|--|------|
| Brain<br>Note: LEUKEMIA MONUC TGLs = 8-5     |                           | Leukemia Mononuclear                                 |      |
| Heart  |                           | Cardiomyopathy<br>Leukemia Mononuclear               | Mild |
| Liver<br>[ Leukemia Mononuclear TGLS = 7-3 ] |                           | Leukemia Mononuclear                                 |      |
| Lung<br>Note: LEUKEMIA MONUC TGLs = 4-1+2    |                           | Alveolar/Bronchiolar Adenoma<br>Leukemia Mononuclear |      |
| Pituitary Gland                              | Pars Distalis             | Adenoma  |      |
| Spleen                                       |                           | Leukemia Mononuclear                                 |      |
| Testes<br>Note: ADENOMA TGLs = 2-6           | Bilateral, Interstit Cell | Adenoma  |      |
| Thymus                                       |                           | Leukemia Mononuclear                                 |      |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 68

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 690

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Epididymis                | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric |
| Mammary Gland             | Nose                     | Pancreas                   | Parathyroid Gland       |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

**OBSERVATIONS**

|                                |                |                                  |                  |
|--------------------------------|----------------|----------------------------------|------------------|
| Adrenal Gland                  | Medulla        | Hyperplasia                      | Minimal          |
| Kidney                         |                | Nephropathy                      | Mild             |
| Liver                          |                | Basophilic Focus                 |                  |
| Lung                           |                | Alveolar/Bronchiolar Adenoma     |                  |
| Note: ALV BRON ADEN TGLs = 2-1 |                |                                  |                  |
| Lymph Node                     | Pancreatic     | Infiltration Cellular            | Histiocyte, Mild |
| Pituitary Gland                | Pars Distalis  | Adenoma                          |                  |
| Note: ADENOMA TGLs = 1-8       |                |                                  |                  |
| Spleen                         |                | Hematopoietic Cell Proliferation | Mild             |
|                                |                | Infiltration Cellular            | Histiocyte, Mild |
| Testes                         | Interstit Cell | Hyperplasia                      | Minimal          |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                   |                         |
|----------------------|---------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 69 | <b>TRT#:</b> 1            | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 647 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                        |                         |                            |                    |
|------------------------|-------------------------|----------------------------|--------------------|
| Adrenal Gland - Cortex | Bone                    | Bone Marrow                | Brain              |
| Epididymis             | Esophagus               | Intestine Small - Duodenum | Islets, Pancreatic |
| Lung                   | Lymph Node - Mandibular | Lymph Node - Mesenteric    | Nose               |
| Pancreas               | Parathyroid Gland       | Preputial Gland            | Prostate           |
| Salivary Glands        | Seminal Vesicle         | Skin                       | Testes             |
| Thymus                 | Thyroid Gland           | Trachea                    | Urinary Bladder    |

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**MISSING**

Mammary Gland

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**AUTO PRECLUDES DIAG.**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Spleen                  | Stomach - Forestomach    | Stomach - Glandular     |

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**OBSERVATIONS**

|   |               |                            |               |
|---|---------------|----------------------------|---------------|
| Adrenal Gland<br>Note: [ PHEOCHROM MAL ] TGLs = 2-8.1 | Medulla       | Pheochromocytoma Malignant |               |
| Heart   |               | Cardiomyopathy             | Mild          |
| Kidney  |               | Nephropathy                | Minimal       |
| Liver   |               | Basophilic Focus           |               |
|   |               | Fatty Change               | Diffuse, Mild |
| Pituitary Gland                                       | Pars Distalis | Adenoma                    |               |
|   | Pars Distalis | Angiectasis                | Mild          |
| Note: ADENOMA TGLs = 4-8                              |               |                            |               |

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**PRIMARY CAUSE OF DEATH** -

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 70

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Mesentery                 |
| Nose                     | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Seminal Vesicle          | Spleen                     | Stomach - Forestomach   | Stomach - Glandular       |
| Thymus                   | Trachea                    | Urinary Bladder         |                           |

**MISSING**

|               |                 |      |
|---------------|-----------------|------|
| Mammary Gland | Preputial Gland | Skin |
|---------------|-----------------|------|

**OBSERVATIONS**

|                 |                |                         |                  |
|-----------------|----------------|-------------------------|------------------|
| Adrenal Gland   | Medulla        | Pheochromocytoma Benign |                  |
| Heart           |                | Cardiomyopathy          | Mild             |
| Kidney          |                | Nephropathy             | Mild             |
|                 | Renal Tubule   | Pigmentation            | Minimal          |
| Liver           |                | Basophilic Focus        |                  |
|                 |                | Eosinophilic Focus      |                  |
|                 | Bile Duct      | Hyperplasia             | Mild             |
| Lymph Node      | Mesenteric     | Infiltration Cellular   | Histiocyte, Mild |
| Pituitary Gland | Pars Distalis  | Adenoma                 |                  |
| Prostate        | Epithelium     | Hyperplasia             | Mild             |
| Testes          | Interstit Cell | Adenoma                 |                  |
| Note: ADENOMA   | TGLs = 4-6     |                         |                  |
| Thyroid Gland   | Follicular Cel | Cyst                    |                  |
| Note: CYST      | TGLs = 2-8     |                         |                  |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 71

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                         |                            |                         |
|---------------------------|-------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                    | Bone Marrow                | Brain                   |
| Epididymis                | Esophagus               | Eye                        | Harderian Gland         |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Lung                       | Lymph Node - Mandibular |
| Lymph Node - Mesenteric   | Nose                    | Pancreas                   | Parathyroid Gland       |
| Pituitary Gland           | Preputial Gland         | Prostate                   | Salivary Glands         |
| Seminal Vesicle           | Stomach - Forestomach   | Stomach - Glandular        | Thyroid Gland           |
| Trachea                   | Urinary Bladder         |                            |                         |

MISSING

|               |        |
|---------------|--------|
| Mammary Gland | Thymus |
|---------------|--------|

OBSERVATIONS

|                                      |                           |                         |         |
|--------------------------------------|---------------------------|-------------------------|---------|
| Adrenal Gland                        | Bilateral, Medulla        | Pheochromocytoma Benign |         |
| Heart                                |                           | Cardiomyopathy          | Mild    |
| Intestine Large                      | Rectum                    | Parasite                | Mild    |
| Kidney                               | Papilla                   | Mineralization          | Minimal |
|                                      |                           | Nephropathy             | Mild    |
| Liver                                |                           | Basophilic Focus        |         |
|                                      | Bile Duct                 | Hyperplasia             | Mild    |
|                                      |                           | Leukemia Mononuclear    |         |
| Note: LEUKEMIA MONUC                 | TGLs = 7-3                |                         |         |
| Skin                                 | Subcut Tiss               | Fibroma                 |         |
| Note: FIBROMA                        | TGLs = 2-14+14.1          |                         |         |
| Note: MORE FIBROMA THAN FIBROADENOMA |                           |                         |         |
| Spleen                               |                           | Leukemia Mononuclear    |         |
| Testes                               | Bilateral, Interstit Cell | Adenoma                 |         |
|                                      | Seminif Tub               | Atrophy                 | Mild    |
| Note: ADENOMA                        | TGLs = 4-6,5-6            |                         |         |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 72

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 639

**DOSE:** VEHICLE 79VM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                        |                         |                          |                            |
|------------------------|-------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex | Bone                    | Bone Marrow              | Brain                      |
| Epididymis             | Esophagus               | Intestine Large - Rectum | Intestine Small - Duodenum |
| Islets, Pancreatic     | Lymph Node - Mandibular | Lymph Node - Mesenteric  | Nose                       |
| Parathyroid Gland      | Preputial Gland         | Prostate                 | Salivary Glands            |
| Seminal Vesicle        | Skin                    | Stomach - Forestomach    | Stomach - Glandular        |
| Thymus                 | Thyroid Gland           | Trachea                  | Urinary Bladder            |

**MISSING**

Mammary Gland

**AUTO PRECLUDES DIAG.**

|                         |                         |                         |                           |
|-------------------------|-------------------------|-------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Small - Ileum | Intestine Small - Jejunum |
|-------------------------|-------------------------|-------------------------|---------------------------|

**OBSERVATIONS**

|                               |                           |                       |                |
|-------------------------------|---------------------------|-----------------------|----------------|
| Adrenal Gland                 | Medulla                   | Hyperplasia           | Mild           |
| Heart                         |                           | Cardiomyopathy        | Mild           |
| Kidney                        |                           | Nephropathy           | Mild           |
| Liver                         |                           | Basophilic Focus      |                |
|                               |                           | Fatty Change          | Focal, Minimal |
|                               | Bile Duct                 | Hyperplasia           | Mild           |
|                               |                           | Hemorrhage            | Mild           |
| Lung                          |                           |                       |                |
| [ Hemorrhage TGLS = 3-2 ]     |                           |                       |                |
| Mesentery                     | Fat                       | Necrosis              | Moderate       |
| Note: NECROSIS TGLs = 5-8.1   |                           |                       |                |
| Pancreas                      | Acinus                    | Focal Cellular Change | Minimal        |
| Pituitary Gland               | Pars Distalis             | Angiectasis           | Moderate       |
| Note: ANGIECTASIS TGLs = 6-8  |                           |                       |                |
| Spleen                        |                           | Depletion Lymphoid    | Mild           |
| Note: DEPLET LYMPH TGLs = 4-3 |                           |                       |                |
| Testes                        | Bilateral, Interstit Cell | Adenoma               |                |
|                               | Interstit Cell            | Hyperplasia           | Mild           |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 73

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Epididymis                 | Esophagus               | Eye                       | Harderian Gland          |
| Heart                      | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   | Mammary Gland            |
| Nose                       | Parathyroid Gland       | Pituitary Gland           | Salivary Glands          |
| Seminal Vesicle            | Skin                    | Stomach - Glandular       | Thymus                   |
| Trachea                    | Urinary Bladder         |                           |                          |

MISSING

Stomach - Forestomach

OBSERVATIONS

|                            |                           |                                  |          |
|----------------------------|---------------------------|----------------------------------|----------|
| Adrenal Gland              | Medulla                   | Hyperplasia                      | Mild     |
|                            | Medulla                   | Pheochromocytoma Benign          |          |
| Kidney                     |                           | Nephropathy                      | Mild     |
|                            | Renal Tubule              | Pigmentation                     | Minimal  |
| Liver                      |                           | Basophilic Focus                 |          |
|                            |                           | Clear Cell Focus                 |          |
|                            | Bile Duct                 | Hyperplasia                      | Mild     |
| Pancreas                   | Acinus                    | Hyperplasia                      | Mild     |
| Preputial Gland            |                           | Necrosis                         | Moderate |
| Note: NECROSIS TGLs = 2-10 |                           |                                  |          |
| Prostate                   | Epithelium                | Hyperplasia                      | Mild     |
| Spleen                     |                           | Hematopoietic Cell Proliferation | Mild     |
| Testes                     | Bilateral, Interstit Cell | Adenoma                          |          |
|                            | Seminif Tub               | Atrophy                          | Mild     |
|                            | Interstit Cell            | Hyperplasia                      | Mild     |

Note: MOST OF THE CELLS IN ONE TESTICULAR TUMOR HAVE A  
 Note: VACUOLATED OR LACY CYTOPLASM, CHOLESTEROL CLEFTS  
 Note: AND STRANDS OF FIBROUS SEPTA  
 Note: ADENOMA TGLs = 3-6

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:26

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 73

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Thyroid Gland

C Cell

Adenoma

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 74

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 727

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Pancreas                |
| Parathyroid Gland         | Preputial Gland          | Prostate                   | Salivary Glands         |
| Seminal Vesicle           | Thymus                   | Thyroid Gland              | Tissue NOS              |
| Trachea                   | Urinary Bladder          |                            |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|   |                           |                                  |                  |
|---|---------------------------|----------------------------------|------------------|
| Heart   |                           | Cardiomyopathy                   | Mild             |
| Kidney  |                           | Nephropathy                      | Moderate         |
| Note: NEPHROPATHY                               | TGLs = 6-4                |                                  |                  |
| Liver   |                           | Basophilic Focus                 |                  |
|   |                           | Necrosis                         | Mild             |
| Note: NECROSIS                                  | TGLs = 5-3                |                                  |                  |
| Lung  | Alveolar Epith            | Hyperplasia                      | Minimal          |
| Lymph Node                                      | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild |
| Nose  |                           | Inflammation                     | Acute, Moderate  |
| Pituitary Gland                                 | Pars Distalis             | Hyperplasia                      | Minimal          |
| Prostate  |                           |                                  |                  |
| Note: NEST OF CELLS WITH FOAMY CYTOPLASM        |                           |                                  |                  |
| Skin  | Subcut Tiss               | Fibrous Histiocytoma             |                  |
| Note: [ FIB HISTIOCYT ]                         | TGLs = 3-13               |                                  |                  |
| Note: VASCULAR TUMOR. MANY MULTINUCLEATE CELLS. |                           |                                  |                  |
| Spleen  |                           | Hematopoietic Cell Proliferation | Moderate         |
| Stomach   | Forestomach               | Acanthosis                       | Minimal          |
|   | Glandular                 | Erosion                          | Mild             |
| Testes  | Bilateral, Interstit Cell | Adenoma                          |                  |
|   | Seminif Tub               | Atrophy                          | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:26

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 74

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 727

**DOSE:** VEHICLE 79VM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: ADENOMA      TGLs = 4-6

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 75

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Epididymis  
Intestine Large - Colon  
Intestine Small - Jejunum  
Pancreas  
Seminal Vesicle  
Stomach - Glandular  
Urinary Bladder

Bone  
Esophagus  
Intestine Large - Rectum  
Islets, Pancreatic  
Parathyroid Gland  
Skin  
Thymus

Bone Marrow  
Heart  
Intestine Small - Duodenum  
Lung  
Pituitary Gland  
Spleen  
Thyroid Gland

Brain  
Intestine Large - Cecum  
Intestine Small - Ileum  
Lymph Node - Mandibular  
Salivary Glands  
Stomach - Forestomach  
Trachea

MISSING

Mammary Gland

OBSERVATIONS

Adrenal Gland  
Kidney

Medulla  
Renal Tubule

Hyperplasia  
Nephropathy  
Pigmentation  
Basophilic Focus  
Clear Cell Focus

Mild  
Mild  
Minimal

Liver

Bile Duct  
Mesenteric

Hyperplasia  
Infiltration Cellular  
Inflammation  
Adenoma

Mild  
Histiocyte, Mild  
Acute, Mild

Lymph Node  
Nose  
Preputial Gland

Bilateral

Hyperplasia  
Adenoma  
Atrophy  
Hyperplasia

Mild  
Mild  
Mild  
Mild

Note: ADENOMA TGLs = 1-10

Prostate  
Testes

Epithelium  
Bilateral, Interstit Cell  
Seminif Tub  
Interstit Cell

Note: ADENOMA TGLs = 2-6,3-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 76

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: VEHICLE 79VM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Bone                       | Bone Marrow             | Brain                     | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Nose                    | Pancreas                  | Parathyroid Gland        |
| Salivary Glands            | Seminal Vesicle         | Stomach - Glandular       | Testes                   |
| Thyroid Gland              | Trachea                 | Urinary Bladder           |                          |

MISSING

|               |                 |
|---------------|-----------------|
| Mammary Gland | Preputial Gland |
|---------------|-----------------|

OBSERVATIONS

|                 |   |   |                  |
|-----------------|---|---|------------------|
| Adrenal Gland   | Medulla<br>Cortex<br>Medulla                | Hyperplasia<br>Leukemia Mononuclear<br>Leukemia Mononuclear | Minimal          |
| Heart           |   | Cardiomyopathy<br>Leukemia Mononuclear                      | Mild             |
| Kidney          |   | Nephropathy   | Moderate         |
| Liver           |   | Basophilic Focus<br>Degeneration<br>Leukemia Mononuclear    | Cystic, Minimal  |
|                 | [ Basophilic Focus TGLS = 8-3+3.1 ]         |   |                  |
| Lung            |   | Leukemia Mononuclear  |                  |
|                 | Note: LEUKEMIA MONUC TGLs = 3-1+2,4-1+2     |   |                  |
|                 | Note: NUMEROUS NEUTROPHILS IN BLOOD VESSELS |   |                  |
| Lymph Node      | Mesenteric                                  | Infiltration Cellular                                       | Histiocyte, Mild |
| Pituitary Gland | Pars Distalis<br>Pars Distalis              | Adenoma<br>Angiectasis                                      | Mild             |
|                 | Note: ADENOMA TGLs = 9-8                    |   |                  |
| Prostate        |   | Abscess   | Marked           |
|                 | Note: ABSCESS TGLs = 6-6                    |   |                  |
| Skin            | Subcut Tiss                                 | Sarcoma   |                  |
|                 | Note: [ SARCOMA ] TGLs = 2-13+13.1          |   |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                                 |                         |
|----------------------|---------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 76 | <b>TRT#:</b> 1            | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 747 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |             |                      |      |
|-------------------------------------|-------------|----------------------|------|
| Spleen                              |             | Leukemia Mononuclear |      |
| [ Leukemia Mononuclear TGLS = 7-3 ] |             |                      |      |
| Stomach                             | Forestomach | Necrosis             | Mild |
| Thymus                              |             | Leukemia Mononuclear |      |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                           |                       |                         |
|----------------------|---------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 78 | <b>TRT#:</b> 1            | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 499 |
|                      | <b>DOSE:</b> VEHICLE 79VM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Mammary Gland             | Nose                     | Pancreas                   | Parathyroid Gland       |
| Pituitary Gland           | Preputial Gland          | Prostate                   | Salivary Glands         |
| Seminal Vesicle           | Spleen                   | Stomach - Forestomach      | Stomach - Glandular     |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |

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**OBSERVATIONS**

|                                 |                           |                       |                  |
|---------------------------------|---------------------------|-----------------------|------------------|
| Heart                           |                           | Cardiomyopathy        | Mild             |
| Kidney                          |                           | Nephropathy           | Minimal          |
|                                 | Renal Tubule              | Pigmentation          | Minimal          |
| Liver                           |                           | Basophilic Focus      |                  |
|                                 |                           | Fatty Change          | Focal, Mild      |
| Lymph Node                      | Mediastinal               | Infiltration Cellular | Histiocyte, Mild |
|                                 | Mesenteric                | Infiltration Cellular | Histiocyte, Mild |
| Note: INFILTRAT CELL TGLs = 2-1 |                           |                       |                  |
| Skin                            | Subcut Tiss               | Fibroma               |                  |
| [ Fibroma TGLs = 1-13 ]         |                           |                       |                  |
| Testes                          | Bilateral, Interstit Cell | Adenoma               |                  |
|                                 | Interstit Cell            | Hyperplasia           | Mild             |
| Note: ADENOMA TGLs = 4-6        |                           |                       |                  |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 79

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Epididymis                 | Esophagus               | Intestine Large - Cecum   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lung                       | Lymph Node - Mesenteric | Nose                      | Pancreas                 |
| Parathyroid Gland          | Preputial Gland         | Prostate                  | Salivary Glands          |
| Seminal Vesicle            | Skin                    | Stomach - Glandular       | Testes                   |
| Thymus                     | Thyroid Gland           | Trachea                   | Urinary Bladder          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                       |                |                                  |                  |
|---------------------------------------|----------------|----------------------------------|------------------|
| Adrenal Gland                         | Medulla        | Hyperplasia                      | Mild             |
|                                       | Medulla        | Pheochromocytoma Benign          |                  |
| Note: PHEOCHROM BGN TGLs = 5-8        |                |                                  |                  |
| Heart                                 |                | Cardiomyopathy                   | Mild             |
| Note: CARDIOMYOPATHY TGLs = 4-2.1     |                |                                  |                  |
| Intestine Large                       | Colon          | Parasite                         |                  |
| Kidney                                | Transit Epithe | Hyperplasia                      | Minimal          |
|                                       |                | Nephropathy                      | Moderate         |
| Note: NEPHROPATHY TGLs = 6-4          |                |                                  |                  |
| Liver                                 |                | Basophilic Focus                 |                  |
|                                       |                | Hepatocellular Adenoma           |                  |
| Note: [ HEPATOCLR ADEN ] TGLs = 9-3.1 |                |                                  |                  |
| Lymph Node                            | Mandibular     | Degeneration                     | Cystic, Mild     |
| Note: DEGEN TGLs = 1-9                |                |                                  |                  |
| Pituitary Gland                       | Pars Distalis  | Adenoma                          |                  |
|                                       | Pars Distalis  | Angiectasis                      | Moderate         |
| Note: ADENOMA TGLs = 7-8              |                |                                  |                  |
| Spleen                                |                | Hematopoietic Cell Proliferation | Mild             |
|                                       |                | Infiltration Cellular            | Histiocyte, Mild |
| Stomach                               | Forestomach    | Acanthosis                       | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 79

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Forestomach

Hyperkeratosis

Mild

Note: ACANTHOSIS TGLs = 10-7

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 80

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79VM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mesenteric    | Preputial Gland         | Salivary Glands           |
| Seminal Vesicle          | Skin                       | Spleen                  | Stomach - Forestomach     |
| Stomach - Glandular      | Testes                     | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            |                         |                           |

**OBSERVATIONS**

|                   |                    |                         |             |
|-------------------|--------------------|-------------------------|-------------|
| Adrenal Gland     | Medulla            | Hyperplasia             | Mild        |
|                   | Bilateral, Medulla | Pheochromocytoma Benign |             |
| Heart             |                    | Cardiomyopathy          | Mild        |
| Kidney            | Renal Tubule       | Adenoma                 |             |
|                   | Papilla            | Mineralization          | Minimal     |
|                   |                    | Nephropathy             | Marked      |
| Note: NEPHROPATHY | TGLs = 6-4+4.1     |                         |             |
| Liver             |                    | Basophilic Focus        |             |
|                   | Bile Duct          | Hyperplasia             | Mild        |
| Lung              |                    | Congestion              | Mild        |
| Note: CONGESTION  | TGLs = 2-1+2       |                         |             |
| Lymph Node        | Mandibular         | Degeneration            | Mild        |
| Mammary Gland     |                    | Galactocele             |             |
| Nose              |                    | Inflammation            | Acute, Mild |
| Pancreas          | Acinus             | Hyperplasia             | Mild        |
| Parathyroid Gland |                    | Hyperplasia             | Moderate    |
| Pituitary Gland   | Pars Distalis      | Adenoma                 |             |
|                   | Pars Distalis      | Pigmentation            | Mild        |
| Note: ADENOMA     | TGLs = 9-8         |                         |             |
| Prostate          | Epithelium         | Hyperplasia             | Minimal     |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 81 | <b>TRT#:</b> 2<br><b>DOSE:</b> 0.025 G/KG 79 LM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|----------------------|---|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Harderian Gland            |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Mammary Gland            | Parathyroid Gland          |
| Preputial Gland         | Salivary Glands           | Seminal Vesicle          | Skin                       |
| Stomach - Glandular     | Thyroid Gland             | Trachea                  | Urinary Bladder            |

**OBSERVATIONS**

|  |               |                       |                        |
|--|---------------|-----------------------|------------------------|
| Eye                                    |               | Inflammation          | Acute, Mild            |
| Note: INFLAMMATION                     | TGLs = 1-13   |                       |                        |
| Heart                                  |               | Cardiomyopathy        | Mild                   |
| Islets, Pancreatic                     |               | Adenoma               |                        |
| Kidney                                 |               | Nephropathy           | Mild                   |
|  | Renal Tubule  | Pigmentation          | Minimal                |
| Liver                                  |               | Basophilic Focus      |                        |
|  |               | Clear Cell Focus      |                        |
|  |               | Inflammation          | Granulomatous, Minimal |
|  |               | Pigmentation          | Minimal                |
| Note: INFLAMMATION                     | TGLs = 5-3    |                       |                        |
| Lung                                   |               | Infiltration Cellular | Histiocyte, Minimal    |
| [ Infiltration Cellular TGLS = 2-1+2 ] |               |                       |                        |
| Lymph Node                             | Mesenteric    | Infiltration Cellular | Histiocyte, Mild       |
|  | Mandibular    | Pigmentation          | Minimal                |
|  | Mediastinal   | Pigmentation          | Mild                   |
|  | Mesenteric    | Pigmentation          | Mild                   |
| Nose                                   |               | Fungus                | Mild                   |
|  |               | Inflammation          | Acute, Moderate        |
| Pancreas                               | Acinus        | Hyperplasia           | Mild                   |
| Pituitary Gland                        | Pars Distalis | Adenoma               | Multiple               |
| Prostate                               | Epithelium    | Hyperplasia           | Mild                   |
| Spleen                                 |               | Pigmentation          | Hemosiderin, Mild      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 81 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |                           |              |         |
|---------------|---------------------------|--------------|---------|
| Stomach       | Forestomach               | Pigmentation | Mild    |
| Testes        | Bilateral, Interstit Cell | Acanthosis   | Mild    |
|               | Seminif Tub               | Adenoma      |         |
|               |                           | Atrophy      | Mild    |
| Note: ADENOMA | TGLs = 3-6,4-6            |              |         |
| Thymus        |                           | Pigmentation | Minimal |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 83      **TRT#:** 2      **SEX:** Male      **DAY ON TEST:** 739  
**DOSE:** 0.025 G/KG 79 LM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Bone Marrow               | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular  | Mammary Gland           | Nose                      | Parathyroid Gland       |
| Pituitary Gland          | Preputial Gland         | Prostate                  | Salivary Glands         |
| Seminal Vesicle          | Skin                    | Stomach - Forestomach     | Stomach - Glandular     |
| Thymus                   | Thyroid Gland           | Trachea                   | Urinary Bladder         |

**OBSERVATIONS**

|   |              |                         |                     |
|---|--------------|-------------------------|---------------------|
| Adrenal Gland                             | Medulla      | Pheochromocytoma Benign |                     |
| Heart                                     |              | Cardiomyopathy          | Mild                |
| Intestine Small                           | Duodenum     | Pigmentation            | Minimal             |
| Kidney                                    | Papilla      | Mineralization          | Minimal             |
|   |              | Nephropathy             | Mild                |
|   | Renal Tubule | Pigmentation            | Minimal             |
| Liver                                     |              | Eosinophilic Focus      |                     |
|   |              | Hepatocellular Adenoma  |                     |
|   |              | Inflammation            | Granulomatous, Mild |
|   |              | Leukemia Mononuclear    |                     |
|   |              | Pigmentation            | Minimal             |
| Note: [ HEPATOCLR ADEN ] TGLs = 8,9-3+3.1 |              |                         |                     |
| Lung                                      |              | Infiltration Cellular   | Histiocyte, Minimal |
|   |              | Pigmentation            | Minimal             |
| Note: INFILTRAT CELL TGLs = 4-1+2         |              |                         |                     |
| Lymph Node                                | Mesenteric   | Infiltration Cellular   | Histiocyte, Mild    |
|   | Pancreatic   | Infiltration Cellular   | Histiocyte, Mild    |
|   | Mediastinal  | Pigmentation            | Mild                |
|   | Mesenteric   | Pigmentation            | Mild                |
|   | Pancreatic   | Pigmentation            | Mild                |
| Note: PIGMENT TGLs = 7-8                  |              |                         |                     |
| Pancreas                                  | Acinus       | Adenoma                 |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 83 | <b>TRT#:</b> 2<br><b>DOSE:</b> 0.025 G/KG 79 LM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                      |  |   |   |
|--------------------------------------|--|---|---|
| [ Hyperplasia TGLS = 6-9 ]<br>Spleen | Acinus   | Hyperplasia   | Moderate                                      |
| Note: CONGESTED<br>Testes            | Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell | Hematopoietic Cell Proliferation<br>Pigmentation<br><br>Adenoma<br>Atrophy<br>Hyperplasia | Mild<br>Hemosiderin, Mild<br><br>Mild<br>Mild |
| Note: ADENOMA      TGLs = 1-6,2-6    |  |   |   |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 84                      **TRT#:** 2                      **SEX:** Male                      **DAY ON TEST:** 653  
**DOSE:** 0.025 G/KG 79 LM                      **DISP:** Moribund                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Epididymis               | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Pancreas                | Parathyroid Gland         |
| Preputial Gland         | Prostate                 | Salivary Glands         | Seminal Vesicle           |
| Skin                    | Spinal Cord              | Stomach - Forestomach   | Trachea                   |
| Urinary Bladder         |                          |                         |                           |

**MISSING**

|                         |               |
|-------------------------|---------------|
| Lymph Node - Mandibular | Mammary Gland |
|-------------------------|---------------|

**OBSERVATIONS**

|   |              |                       |                                     |
|---|--------------|-----------------------|-------------------------------------|
| Heart   |              | Cardiomyopathy        | Mild                                |
| Intestine Small   | Duodenum     | Pigmentation          | Minimal                             |
| Kidney  | Papilla      | Mineralization        | Minimal                             |
|   |              | Nephropathy           | Minimal                             |
|   | Renal Tubule | Pigmentation          | Minimal                             |
| Liver   |              | Basophilic Focus      |                                     |
|   |              | Fatty Change          | Focal, Mild                         |
|   |              | Inflammation          | Granulomatous, Minimal              |
|   |              | Leukemia Mononuclear  |                                     |
|   |              | Pigmentation          | Mild                                |
| Note: FATTY CHANGE      TGLs = 4-3                            |              |                       |                                     |
| Lung  |              | Hemorrhage            | Minimal                             |
|   |              | Infiltration Cellular | Histiocyte, Minimal                 |
|   |              | Osteosarcoma          | Metastatic (Uncertain Primary Site) |
|   |              | Pigmentation          | Minimal                             |
| Note: OSTEOSARC      TGLs = 5-1.1                             |              |                       |                                     |
| Note: THE POSSIBILITY OF OSTEOID METAPLASIA TO BE CONSIDERED. |              |                       |                                     |
| Lymph Node  | Mesenteric   | Infiltration Cellular | Histiocyte, Mild                    |
|   | Mesenteric   | Pigmentation          | Mild                                |
| Note: PIGMENT      TGLs = 7-8                                 |              |                       |                                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|  |   |   |  |
|--|---|---|--|
| <b>ANIMAL ID:</b> 84                     | <b>TRT#:</b> 2<br><b>DOSE:</b> 0.025 G/KG 79 LM | <b>SEX:</b> Male<br><b>DISP:</b> Moribund | <b>DAY ON TEST:</b> 653<br><b>HISTO:</b> |
| <b>ORGAN AND ACCOUNTABLE SITE STATUS</b> |   |   |  |
| Pituitary Gland                          | Pars Distalis                                   | Hyperplasia                               | Mild                                     |
| Spleen                                   |   | Hematopoietic Cell Proliferation          | Mild                                     |
|  |   | Infiltration Cellular                     | Histiocyte, Minimal                      |
|  |   | Leukemia Mononuclear                      |  |
|  |   | Pigmentation                              | Minimal                                  |
|  |   | Pigmentation                              | Hemosiderin, Minimal                     |
| Note: LEUKEMIA MONUC TGLs = 3-3          |   |   |  |
| Stomach                                  | Glandular                                       | Erosion                                   | Mild                                     |
|  | Glandular                                       | Inflammation                              | Acute, Mild                              |
|  | Glandular                                       | Pigmentation                              | Minimal                                  |
| Testes                                   | Bilateral, Interstit Cell                       | Adenoma                                   |  |
|  | Seminif Tub                                     | Atrophy                                   | Mild                                     |
| Note: ADENOMA TGLs = 2-6,6-6             |   |   |  |
| Thymus                                   |   | Pigmentation                              | Minimal                                  |
| Thyroid Gland                            | C Cell  | Adenoma                                   |  |
| PRIMARY CAUSE OF DEATH                   | -   |   |  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 86

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Bone                      | Epididymis               | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Parathyroid Gland         | Preputial Gland          | Prostate                   |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Stomach - Forestomach      |
| Thyroid Gland           | Trachea                   | Urinary Bladder          |                            |

**MISSING**

Thymus

**OBSERVATIONS**

|   |                    |                              |                  |
|---|--------------------|------------------------------|------------------|
| Adrenal Gland                             | Bilateral, Medulla | Pheochromocytoma Benign      |                  |
| Note: PHEOCHROM BGN TGLs = 6-8            |                    |                              |                  |
| Bone Marrow                               |                    | Pigmentation                 | Minimal          |
| Brain                                     |                    | Neoplasm Nos                 |                  |
| Note: [ NEOPLASM NOS ] TGLs = 9-5+5.1     |                    |                              |                  |
| Heart                                     |                    | Cardiomyopathy               | Mild             |
| Kidney                                    |                    | Leukemia Mononuclear         |                  |
|   | Papilla            | Mineralization               | Minimal          |
|   |                    | Nephropathy                  | Mild             |
| Liver                                     |                    | Leukemia Mononuclear         |                  |
|   |                    | Pigmentation                 | Minimal          |
| Note: LEUKEMIA MONUC TGLs = 7-3           |                    |                              |                  |
| Lung                                      |                    | Alveolar/Bronchiolar Adenoma |                  |
|   |                    | Infiltration Cellular        | Histiocyte, Mild |
| Note: INFILTRAT CELL TGLs = 2-1+2         |                    |                              |                  |
| Lymph Node                                | Mandibular         | Leukemia Mononuclear         |                  |
|   | Mediastinal        | Leukemia Mononuclear         |                  |
|   | Mesenteric         | Leukemia Mononuclear         |                  |
| Note: LEUKEMIA MONUC TGLs = 1-9,4-2,8-8.1 |                    |                              |                  |
| Pancreas                                  | Acinus             | Hyperplasia                  | Mild             |
| Pituitary Gland                           | Pars Distalis      | Adenoma                      |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 86 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |             |   |   |                         |
|---|-------------|---|---|-------------------------|
| Note: ADENOMA<br>Spleen<br>[ Pigmentation TGLS = 5-3.1 ]<br>Stomach<br>Testes | TGLs = 11-8 | Pars Distalis   | Angiectasis                                   | Mild                    |
|   |             |   | Leukemia Mononuclear<br>Pigmentation          | Mild                    |
|   |             | Glandular<br>Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell | Fibrosis<br>Adenoma<br>Atrophy<br>Hyperplasia | Minimal<br>Mild<br>Mild |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 89

TRT#: 2

SEX: Male

DAY ON TEST: 739

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Brain                      |
| Epididymis              | Esophagus                 | Eye                      | Harderian Gland            |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Lymph Node - Mandibular  | Nose                       |
| Parathyroid Gland       | Preputial Gland           | Salivary Glands          | Seminal Vesicle            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

MISSING

Thymus

OBSERVATIONS

|  |               |                                  |                  |
|--|---------------|----------------------------------|------------------|
| Bone Marrow                            |               | Pigmentation                     | Minimal          |
| Heart                                  |               | Cardiomyopathy                   | Mild             |
| Islets, Pancreatic                     |               | Adenoma                          |                  |
| Kidney                                 |               | Nephropathy                      | Mild             |
| Liver                                  | Bile Duct     | Hyperplasia                      | Mild             |
|  |               | Leukemia Mononuclear             |                  |
|  |               | Pigmentation                     | Minimal          |
| Note: HYPERPLASIA TGLs = 4-3           |               |                                  |                  |
| Lung                                   |               | Infiltration Cellular            | Histiocyte, Mild |
| Lymph Node                             | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild |
|  | Mesenteric    | Pigmentation                     | Mild             |
| Note: PIGMENT TGLs = 6-8               |               |                                  |                  |
| Mammary Gland                          |               | Fibroadenoma                     |                  |
| [ Fibroadenoma TGLS = 1-14+14.1+14.2 ] |               |                                  |                  |
| Pancreas                               | Acinus        | Hyperplasia                      | Minimal          |
| Pituitary Gland                        | Pars Distalis | Adenoma                          |                  |
|  | Pars Distalis | Angiectasis                      | Moderate         |
| Note: ADENOMA TGLs = 5-8               |               |                                  |                  |
| Prostate                               | Epithelium    | Hyperplasia                      | Mild             |
| Spleen                                 |               | Hematopoietic Cell Proliferation | Moderate         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 89 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                 |                           |                      |         |
|---------------------------------|---------------------------|----------------------|---------|
| Note: HEMA CELL PROL TGLs = 2-3 |                           | Leukemia Mononuclear |         |
| Testes                          | Bilateral, Interstit Cell | Adenoma              |         |
| Note: ADENOMA TGLs = 3-6        |                           |                      |         |
| Thyroid Gland                   | C Cell                    | Hyperplasia          | Minimal |
| PRIMARY CAUSE OF DEATH          | -                         |                      |         |

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 92

TRT#: 2

SEX: Male

DAY ON TEST: 253

DOSE: 0.025 G/KG 79 LM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Intestine Small - Jejunum  
Lymph Node - Mesenteric  
Parathyroid Gland  
Skin  
Urinary Bladder

Adrenal Gland - Medulla  
Esophagus  
Intestine Large - Rectum  
Islets, Pancreatic  
Mammary Gland  
Pituitary Gland  
Stomach - Glandular

Bone  
Heart  
Intestine Small - Duodenum  
Kidney  
Nose  
Preputial Gland  
Thyroid Gland

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Ileum  
Lymph Node - Mandibular  
Pancreas  
Salivary Glands  
Trachea

OBSERVATIONS

Liver  
  
Note: ANOM HEPAT LOB TGLs = 5-3.1

Fatty Change  
Hepatodiaphragmatic Nodule

Focal, Mild

Lung  
  
Note: HEMORRHAGE TGLs = 2-1+2  
Note: PIGMENT TGLs = 1-1+2  
Note: MUCINOUS MATERIAL, INFLAMMATORY CELLS IN MAINSTREAM  
Note: AND TERMINAL BRONCHIOLES. PIGMENT WALLED OFF.

Edema  
Hemorrhage  
Infiltration Cellular  
Inflammation  
Pigmentation

Mild  
Mild  
Histiocyte, Mild  
Granulomatous, Mild  
Mild

Spleen  
Note: PIGMENT TGLs = 4-3

Pigmentation

Hemosiderin, Mild

Stomach  
Testes  
Note: ATROPHY TGLs = 3-6

Forestomach  
Seminif Tub

Hyperkeratosis  
Atrophy

Mild  
Mild

Thymus

Hemorrhage

Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 94 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     |
| Parathyroid Gland       | Preputial Gland           | Salivary Glands         | Seminal Vesicle          |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular     | Thyroid Gland            |
| Trachea                 |                           |                         |                          |

**MISSING**

|               |          |
|---------------|----------|
| Mammary Gland | Prostate |
|---------------|----------|

**OBSERVATIONS**

|                      |                |                            |                        |
|----------------------|----------------|----------------------------|------------------------|
| Adrenal Gland        | Medulla        | Hyperplasia                | Minimal                |
|                      | Cortex         | Leukemia Mononuclear       |                        |
|                      | Medulla        | Leukemia Mononuclear       |                        |
|                      | Medulla        | Pheochromocytoma Benign    |                        |
| Heart                |                | Cardiomyopathy             | Moderate               |
|                      |                | Leukemia Mononuclear       |                        |
| Intestine Small      | Duodenum       | Pigmentation               | Minimal                |
| Kidney               | Renal Tubule   | Hyperplasia                | Minimal                |
|                      |                | Nephropathy                | Mild                   |
|                      |                | Pigmentation               | Minimal                |
| Liver                |                | Basophilic Focus           |                        |
|                      |                | Clear Cell Focus           |                        |
|                      |                | Fatty Change               | Focal, Minimal         |
|                      |                | Hepatodiaphragmatic Nodule |                        |
|                      |                | Leukemia Mononuclear       |                        |
|                      |                | Pigmentation               | Minimal                |
| Note: LEUKEMIA MONUC | TGLs = 6-3+3.1 |                            |                        |
| Note: ANOM HEPAT LOB | TGLs = 7-3     |                            |                        |
| Lung                 |                | Atelectasis                | Mild                   |
|                      |                | Infiltration Cellular      | Histiocyte, Mild       |
|                      |                | Inflammation               | Granulomatous, Minimal |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 94 | <b>TRT#:</b> 2<br><b>DOSE:</b> 0.025 G/KG 79 LM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 743<br><b>HISTO:</b> |
|----------------------|---|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |  |  |                              |
|---|--|--|------------------------------|
|   |  | Leukemia Mononuclear<br>Mineralization<br>Pigmentation                                       | Mild<br>Mild                 |
| Note: INFILTRAT CELL TGLs = 2-1+2<br>Lymph Node       | Mandibular<br>Mediastinal<br>Mesenteric<br>Pancreatic      | Leukemia Mononuclear<br>Leukemia Mononuclear<br>Leukemia Mononuclear<br>Leukemia Mononuclear |                              |
| Note: LEUKEMIA MONUC TGLs = 1-9,4-9.1,5-8<br>Pancreas |  | Leukemia Mononuclear   |                              |
| Pituitary Gland                                       | Pars Distalis  | Hyperplasia  | Mild                         |
| Spleen  |  | Leukemia Mononuclear<br>Fibrosis   | Mild                         |
|   |  | Leukemia Mononuclear<br>Pigmentation<br>Pigmentation   | Minimal<br>Hemosiderin, Mild |
| [ Fibrosis TGLS = 3-3.1 ]<br>Testes                   | Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell | Adenoma<br>Atrophy<br>Hyperplasia  | Mild<br>Minimal              |
| Thymus  |  | Leukemia Mononuclear<br>Pigmentation   | Minimal                      |
| Urinary Bladder                                       |  | Leukemia Mononuclear   |                              |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 95

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Brain                   | Epididymis                |
| Esophagus                | Harderian Gland            | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    | Pancreas                  |
| Parathyroid Gland        | Pituitary Gland            | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Skin                    | Stomach - Forestomach     |
| Trachea                  | Urinary Bladder            |                         |                           |

OBSERVATIONS

|                                |              |                                  |                        |
|--------------------------------|--------------|----------------------------------|------------------------|
| Adrenal Gland                  | Medulla      | Hyperplasia                      | Minimal                |
| Bone Marrow                    |              | Pigmentation                     | Minimal                |
| Eye                            | Lens         | Cataract                         | Mild                   |
| [ Cataract TGLS = 7-13 ]       |              |                                  |                        |
| Heart                          |              | Cardiomyopathy                   | Mild                   |
| Kidney                         | Renal Tubule | Pigmentation                     | Minimal                |
| Liver                          |              | Basophilic Focus                 |                        |
|                                |              | Fatty Change                     | Focal, Mild            |
|                                |              | Inflammation                     | Granulomatous, Minimal |
|                                |              | Leukemia Mononuclear             |                        |
|                                |              | Pigmentation                     | Minimal                |
| Note: INFLAMMATION TGLs = 6-3  |              |                                  |                        |
| Lung                           |              | Infiltration Cellular            | Histiocyte, Mild       |
| Lymph Node                     | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild       |
|                                | Mediastinal  | Pigmentation                     | Mild                   |
|                                | Mesenteric   | Pigmentation                     | Moderate               |
| Mammary Gland                  |              | Fibroadenoma                     |                        |
| [ Fibroadenoma TGLS = 3-15 ]   |              |                                  |                        |
| Mesentery                      | Fat          | Inflammation                     | Chronic Active, Mild   |
| Note: INFLAMMATION TGLs = 1-14 |              |                                  |                        |
| Spleen                         |              | Hematopoietic Cell Proliferation | Mild                   |
|                                |              | Infiltration Cellular            | Histiocyte, Minimal    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 95 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                    |                           |                      |                   |
|------------------------------------|---------------------------|----------------------|-------------------|
| Stomach                            | Glandular                 | Leukemia Mononuclear |                   |
|                                    | Glandular                 | Pigmentation         | Mild              |
| Note: MORE LIKE ATROPHIC GASTRITIS |                           | Pigmentation         | Hemosiderin, Mild |
| Testes                             | Bilateral, Interstit Cell | Fibrosis             | Mild              |
| Note: ADENOMA TGLs = 2-6           |                           | Metaplasia           | Mild              |
| Thymus                             |                           | Adenoma              |                   |
| Thyroid Gland                      | Follicular Cel            | Pigmentation         | Minimal           |
|                                    |                           | Cyst                 |                   |
| PRIMARY CAUSE OF DEATH             | -                         |                      |                   |

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 96

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Epididymis                | Esophagus                | Harderian Gland            | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Pancreas                   | Parathyroid Gland       |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Testes                   | Trachea                    |                         |

MISSING

Mammary Gland

OBSERVATIONS

|   |                    |                         |                     |
|---|--------------------|-------------------------|---------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 5-8 | Bilateral, Medulla | Pheochromocytoma Benign |                     |
| Eye<br>Note: CATARACT TGLs = 1-13               | Lens               | Cataract                | Mild                |
| Heart   |                    | Cardiomyopathy          | Mild                |
| Kidney  | Papilla            | Mineralization          | Minimal             |
|   |                    | Nephropathy             | Mild                |
| Liver   |                    | Basophilic Focus        |                     |
|   |                    | Clear Cell Focus        |                     |
|   |                    | Hepatocellular Adenoma  |                     |
|   | Bile Duct          | Hyperplasia             | Mild                |
|   |                    | Leukemia Mononuclear    |                     |
| Note: [ HEPATOCLR ADEN ] TGLs = 7-3             |                    |                         |                     |
| Note: LEUKEMIA MONUC TGLs = 6-3                 |                    |                         |                     |
| Lung  |                    | Infiltration Cellular   | Histiocyte, Minimal |
| Lymph Node                                      | Mesenteric         | Infiltration Cellular   | Histiocyte, Mild    |
|   | Mandibular         | Pigmentation            | Minimal             |
|   | Mediastinal        | Pigmentation            | Mild                |
|   | Mesenteric         | Pigmentation            | Mild                |
| Note: PIGMENT TGLs = 4-8                        |                    |                         |                     |
| Nose  |                    | Inflammation            | Acute, Minimal      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 96 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |  |   |  |
|---|--|---|--|
| Pituitary Gland<br>Note: ADENOMA TGLs = 8-8                 | Pars Distalis  | Adenoma   |  |
| Spleen<br>[ Hematopoietic Cell Proliferation TGLS = 3-3.1 ] |  | Hematopoietic Cell Proliferation<br>Leukemia Mononuclear      | Mild   |
| Stomach   | Forestomach<br>Glandular<br>Forestomach<br>Forestomach | Acanthosis<br>Fibrosis<br>Hyperkeratosis<br>Inflammation      | Moderate<br>Mild<br>Mild<br>Chronic Active, Mild |
| Thymus  |  | Pigmentation  | Minimal  |
| Thyroid Gland   | C Cell   | Adenoma   |  |
| Urinary Bladder<br>Note: CALCUS MIC OBS TGLs = 9-9          |  | Calculus Gross Observation<br>Calculus Micro Observation Only |  |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 97

TRT#: 2

SEX: Male

DAY ON TEST: 536

DOSE: 0.025 G/KG 79 LM

DISP: Dead

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Epididymis  
Intestine Large - Rectum  
Islets, Pancreatic  
Pancreas  
Prostate  
Spleen  
Urinary Bladder

Bone  
Esophagus  
Intestine Small - Duodenum  
Lymph Node - Mandibular  
Parathyroid Gland  
Salivary Glands  
Thymus

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Ileum  
Mammary Gland  
Pituitary Gland  
Seminal Vesicle  
Thyroid Gland

Brain  
Intestine Large - Colon  
Intestine Small - Jejunum  
Nose  
Preputial Gland  
Skin  
Trachea

**OBSERVATIONS**

Adrenal Gland  
Note: PHEOCHROM BGN TGLs = 3-8

Medulla

Pheochromocytoma Benign

Heart  
Kidney  
Liver

Cardiomyopathy  
Nephropathy  
Basophilic Focus  
Fatty Change

Mild  
Minimal

Lung

Edema  
Pigmentation

Focal, Mild  
Minimal  
Minimal

Lymph Node  
Stomach

Mesenteric  
Forestomach  
Glandular

Infiltration Cellular  
Acanthosis  
Erosion

Histiocyte, Minimal  
Minimal  
Minimal

Testes

Bilateral, Interstit Cell  
Interstit Cell

Adenoma  
Hyperplasia

Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                   |                         |
|----------------------|-------------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 98 | <b>TRT#:</b> 2                | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 370 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                        |                         |                 |             |
|------------------------|-------------------------|-----------------|-------------|
| Adrenal Gland - Cortex | Adrenal Gland - Medulla | Bone            | Bone Marrow |
| Brain                  | Epididymis              | Esophagus       | Kidney      |
| Nose                   | Pituitary Gland         | Preputial Gland | Prostate    |
| Salivary Glands        | Seminal Vesicle         | Skin            | Testes      |
| Thymus                 | Trachea                 |                 |             |

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**MISSING**

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

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**AUTO PRECLUDES DIAG.**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Liver                      |
| Pancreas                | Spleen                    | Stomach - Forestomach    | Stomach - Glandular        |
| Thyroid Gland           | Urinary Bladder           |                          |                            |

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**OBSERVATIONS**

|                             |            |                |                        |
|-----------------------------|------------|----------------|------------------------|
| Heart                       |            | Cardiomyopathy | Mild                   |
| Lung                        |            | Congestion     | Mild                   |
|                             |            | Inflammation   | Granulomatous, Minimal |
|                             |            | Pigmentation   | Minimal                |
| Lymph Node                  | Mandibular | Pigmentation   | Minimal                |
|                             | Mesenteric | Pigmentation   | Minimal                |
| Nose                        |            |                |                        |
| Note: BLOOD IN NASAL CAVITY |            |                |                        |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 100

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 667

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                         |                         |
|----------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Epididymis                 | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Small - Duodenum | Islets, Pancreatic      | Kidney                  | Nose                    |
| Pancreas                   | Pituitary Gland         | Preputial Gland         | Prostate                |
| Salivary Glands            | Seminal Vesicle         | Skin                    | Stomach - Forestomach   |
| Trachea                    | Urinary Bladder         |                         |                         |

**MISSING**

|                         |               |                   |        |
|-------------------------|---------------|-------------------|--------|
| Lymph Node - Mesenteric | Mammary Gland | Parathyroid Gland | Spleen |
| Thymus                  |               |                   |        |

**AUTO PRECLUDES DIAG.**

|                          |                         |                           |
|--------------------------|-------------------------|---------------------------|
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
|--------------------------|-------------------------|---------------------------|

**OBSERVATIONS**

|   |                           |                       |                  |
|---|---------------------------|-----------------------|------------------|
| Bone Marrow   |                           | Pigmentation          | Minimal          |
| Heart   |                           | Cardiomyopathy        | Mild             |
| Liver   |                           | Basophilic Focus      |                  |
|   | Bile Duct                 | Hyperplasia           | Mild             |
|   |                           | Pigmentation          | Minimal          |
| Lung  |                           | Infiltration Cellular | Histiocyte, Mild |
|   |                           | Inflammation          | Acute, Moderate  |
|   |                           | Pigmentation          | Minimal          |
| Note: MORE LIKE PNEUMONIA<br>[ Infiltration Cellular TGLS = 2-1+2 ] |                           |                       |                  |
| Lymph Node  | Mandibular                | Pigmentation          | Minimal          |
|   | Mediastinal               | Pigmentation          | Mild             |
|   | Pancreatic                | Pigmentation          | Minimal          |
| Stomach   | Glandular                 | Fibrosis              | Mild             |
|   | Glandular                 | Metaplasia            | Minimal          |
|   | Glandular                 | Pigmentation          | Minimal          |
| Testes  | Bilateral, Interstit Cell | Adenoma               |                  |
| Note: ADENOMA      TGLs = 3-6                                       |                           |                       |                  |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 100

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 667

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Thyroid Gland

C Cell

Adenoma

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 103

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Brain                     | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Pancreas                   | Parathyroid Gland       | Pituitary Gland           | Preputial Gland          |
| Prostate                   | Salivary Glands         | Seminal Vesicle           | Skin                     |
| Thyroid Gland              | Trachea                 | Urinary Bladder           |                          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|   |            |                         |                        |
|---|------------|-------------------------|------------------------|
| Adrenal Gland   | Medulla    | Hyperplasia             | Mild                   |
|   | Medulla    | Pheochromocytoma Benign |                        |
| Note: PHEOCHROM BGN TGLs = 4-8                                |            |                         |                        |
| Bone Marrow   |            | Pigmentation            | Minimal                |
| Heart   |            | Cardiomyopathy          | Mild                   |
| Kidney  |            | Nephropathy             | Mild                   |
| Liver   |            | Clear Cell Focus        |                        |
|   |            | Fatty Change            | Focal, Minimal         |
|   |            | Inflammation            | Granulomatous, Minimal |
|   |            | Pigmentation            | Minimal                |
| Note: CLEAR CL FOCUS TGLs = 5-3                               |            |                         |                        |
| Lung  |            | Atelectasis             | Minimal                |
|   |            | Infiltration Cellular   | Histiocyte, Mild       |
|   |            | Inflammation            | Granulomatous, Minimal |
|   |            | Pigmentation            | Mild                   |
| Note: MUCINOUS MATERIAL AND HISTIOCYTES IN A FEW BRONCHIOLES. |            |                         |                        |
| Lymph Node  | Mesenteric | Infiltration Cellular   | Histiocyte, Mild       |
|   | Mandibular | Pigmentation            | Minimal                |
|   | Mesenteric | Pigmentation            | Mild                   |
| Note: PIGMENT TGLs = 3-8                                      |            |                         |                        |
| Nose  |            | Fungus                  | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 103

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                           |                                  |                   |
|------------------------|---------------------------|----------------------------------|-------------------|
| Spleen                 |                           | Inflammation                     | Acute, Mild       |
|                        |                           | Hematopoietic Cell Proliferation | Mild              |
|                        |                           | Pigmentation                     | Mild              |
| Stomach                | Forestomach               | Pigmentation                     | Hemosiderin, Mild |
|                        | Glandular                 | Acanthosis                       | Mild              |
|                        | Glandular                 | Fibrosis                         | Moderate          |
|                        | Glandular                 | Hyperplasia                      | Minimal           |
| Testes                 | Glandular                 | Metaplasia                       | Mild              |
|                        | Bilateral, Interstit Cell | Adenoma                          |                   |
|                        | Seminif Tub               | Atrophy                          | Moderate          |
| Note: ADENOMA          | TGLs = 1-6,2-6            |                                  |                   |
| Thymus                 |                           | Pigmentation                     | Minimal           |
| PRIMARY CAUSE OF DEATH | -                         |                                  |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 104

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 659

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                     | Epididymis              | Esophagus                | Harderian Gland         |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            | Pancreas                |
| Parathyroid Gland         | Preputial Gland         | Prostate                 | Salivary Glands         |
| Seminal Vesicle           | Skin                    | Thyroid Gland            | Trachea                 |
| Urinary Bladder           |                         |                          |                         |

**OBSERVATIONS**

|                      |               |                                  |                  |
|----------------------|---------------|----------------------------------|------------------|
| Heart                |               | Cardiomyopathy                   | Mild             |
|                      |               | Mineralization                   | Moderate         |
| Intestine Small      | Duodenum      | Pigmentation                     | Minimal          |
| Kidney               | Cortex        | Mineralization                   | Moderate         |
|                      |               | Nephropathy                      | Mild             |
| Note: MINERALIZATION | TGLs = 7-4    |                                  |                  |
| Note: NEPHROPATHY    | TGLs = 6-4    |                                  |                  |
| Liver                |               | Basophilic Focus                 |                  |
|                      |               | Pigmentation                     | Mild             |
| Lung                 |               | Edema                            | Minimal          |
|                      |               | Infiltration Cellular            | Histiocyte, Mild |
|                      |               | Inflammation                     | Acute, Minimal   |
|                      |               | Pigmentation                     | Mild             |
| Note: INFILTRAT CELL | TGLs = 11-1+2 |                                  |                  |
| Lymph Node           | Mandibular    | Pigmentation                     | Minimal          |
|                      | Mesenteric    | Pigmentation                     | Mild             |
| Nose                 |               | Inflammation                     | Acute, Mild      |
| Pituitary Gland      | Pars Distalis | Adenoma                          |                  |
|                      | Pars Distalis | Angiectasis                      | Moderate         |
| Note: ADENOMA        | TGLs = 9-8    |                                  |                  |
| Spleen               |               | Depletion Lymphoid               | Mild             |
|                      |               | Hematopoietic Cell Proliferation | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 104

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 659

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                               |                |                       |                       |
|-------------------------------|----------------|-----------------------|-----------------------|
|                               |                | Infiltration Cellular | Histiocyte, Mild      |
|                               |                | Pigmentation          | Hemosiderin, Moderate |
|                               |                | Pigmentation          | Minimal               |
| Note: DEPLET LYMPH TGLs = 8-3 |                |                       |                       |
| Stomach                       | Forestomach    | Inflammation          | Chronic Active, Mild  |
|                               | Glandular      | Mineralization        | Mild                  |
| Testes                        | Interstit Cell | Adenoma               |                       |
| Note: ADENOMA TGLs = 3-6      |                |                       |                       |
| Thymus                        |                | Depletion Lymphoid    | Mild                  |
|                               |                | Pigmentation          | Mild                  |

**PRIMARY CAUSE OF DEATH**

-

Animal Note: STOMACH.

Animal Note: DYSTROPHIC MINERALIZATION IN HEART,KIDNEY, AND

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 106

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 740

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Bone                     | Brain                   | Epididymis                |
| Esophagus               | Eye                      | Harderian Gland         | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Nose                    | Pancreas                 | Parathyroid Gland       | Preputial Gland           |
| Prostate                | Salivary Glands          | Seminal Vesicle         | Skin                      |
| Stomach - Forestomach   | Thymus                   | Trachea                 | Urinary Bladder           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                              |                |                         |                  |
|------------------------------|----------------|-------------------------|------------------|
| Adrenal Gland                | Medulla        | Pheochromocytoma Benign |                  |
| Bone Marrow                  |                | Pigmentation            | Minimal          |
| Heart                        |                | Cardiomyopathy          | Mild             |
| Intestine Small              | Duodenum       | Pigmentation            | Minimal          |
| Islets, Pancreatic           |                | Hyperplasia             | Mild             |
| Note: HYPERPLASIA TGLs = 6-9 |                |                         |                  |
| Kidney                       |                | Nephropathy             | Minimal          |
|                              | Renal Tubule   | Pigmentation            | Minimal          |
| Liver                        |                | Basophilic Focus        |                  |
|                              |                | Pigmentation            | Minimal          |
| Lung                         | Alveolar Epith | Hyperplasia             | Mild             |
|                              |                | Infiltration Cellular   | Histiocyte, Mild |
|                              |                | Pigmentation            | Minimal          |
| [ Hyperplasia TGLS = 3-1+2 ] |                |                         |                  |
| Lymph Node                   | Mesenteric     | Infiltration Cellular   | Histiocyte, Mild |
|                              | Pancreatic     | Infiltration Cellular   | Histiocyte, Mild |
|                              | Mandibular     | Pigmentation            | Minimal          |
|                              | Mediastinal    | Pigmentation            | Mild             |
|                              | Mesenteric     | Pigmentation            | Mild             |
|                              | Pancreatic     | Pigmentation            | Mild             |
| Note: PIGMENT TGLs = 7-9     |                |                         |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 106

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 740

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |                           |                                  |                      |
|---|---------------------------|----------------------------------|----------------------|
| Pituitary Gland   | Pars Distalis             | Hyperplasia                      | Moderate             |
| Spleen  |                           | Hematopoietic Cell Proliferation | Mild                 |
|   |                           | Pigmentation                     | Mild                 |
|   |                           | Pigmentation                     | Hemosiderin, Minimal |
| Stomach   | Glandular                 | Fibrosis                         | Mild                 |
|   | Glandular                 | Hyperplasia                      | Adenomatous, Mild    |
|   | Glandular                 | Inflammation                     | Acute, Mild          |
|   | Glandular                 | Metaplasia                       | Mild                 |
| Note: PROBABLY ADENOMATOUS POLYP,BUT TERM IS NOT IN PCT |                           |                                  |                      |
| Note: [ HYPERPLASIA ] TGLs = 10-7.1                     |                           |                                  |                      |
| Testes  | Bilateral, Interstit Cell | Adenoma                          |                      |
|   | Seminif Tub               | Atrophy                          | Mild                 |
| Note: ADENOMA   | TGLs = 4-6                |                                  |                      |
| Thyroid Gland   | C Cell                    | Adenoma                          |                      |
| Note: ADENOMA   | TGLs = 2-8                |                                  |                      |

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 107

**TRT#:** 2  
**DOSE:** 0.025 G/KG 79 LM

**SEX:** Male  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 738  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                    |                         |                         |
|--------------------------|--------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone               | Bone Marrow             | Brain                   |
| Epididymis               | Esophagus          | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Islets, Pancreatic | Mammary Gland           | Nose                    |
| Pancreas                 | Parathyroid Gland  | Pituitary Gland         | Preputial Gland         |
| Salivary Glands          | Seminal Vesicle    | Skin                    | Stomach - Glandular     |
| Thyroid Gland            | Trachea            | Urinary Bladder         |                         |

**MISSING**

|                         |          |
|-------------------------|----------|
| Intestine Small - Ileum | Prostate |
|-------------------------|----------|

**OBSERVATIONS**

|   |              |                         |                        |
|---|--------------|-------------------------|------------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 5-8 | Medulla      | Pheochromocytoma Benign |                        |
| Heart   |              | Cardiomyopathy          | Mild                   |
| Intestine Small                                 | Duodenum     | Pigmentation            | Minimal                |
|   | Jejunum      | Pigmentation            | Minimal                |
| Kidney  | Papilla      | Mineralization          | Minimal                |
|   |              | Nephropathy             | Mild                   |
|   | Renal Tubule | Pigmentation            | Mild                   |
| Liver   |              | Basophilic Focus        |                        |
|   |              | Clear Cell Focus        |                        |
|   | Bile Duct    | Hyperplasia             | Mild                   |
|   |              | Inflammation            | Granulomatous, Minimal |
|   |              | Leukemia Mononuclear    |                        |
|   |              | Pigmentation            | Mild                   |
| Lung  |              | Atelectasis             | Minimal                |
|   |              | Infiltration Cellular   | Histiocyte, Mild       |
|   |              | Pigmentation            | Minimal                |
| Note: INFILTRAT CELL TGLs = 1-1+2               |              |                         |                        |
| Lymph Node                                      | Mesenteric   | Infiltration Cellular   | Histiocyte, Mild       |
|   | Mandibular   | Pigmentation            | Minimal                |
|   | Mediastinal  | Pigmentation            | Mild                   |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |   |   |  |
|-----------------------|---|---|--|
| <b>ANIMAL ID:</b> 107 | <b>TRT#:</b> 2<br><b>DOSE:</b> 0.025 G/KG 79 LM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 738<br><b>HISTO:</b> |
|-----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |  |   |  |
|---|--|---|--|
| Spleen  | Mesenteric   | Pigmentation<br>Depletion Lymphoid<br>Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Leukemia Mononuclear<br>Pigmentation | Mild<br>Minimal<br>Mild<br>Histiocyte, Minimal<br>Hemosiderin, Minimal |
| Note: CONGESTED<br>Stomach                        | Forestomach<br>Forestomach<br>Forestomach<br>Forestomach | Acanthosis<br>Hyperkeratosis<br>Squamous Cell Carcinoma<br>Squamous Cell Papilloma  | Moderate<br>Mild   |
| Note: PAPILLOMA SQUA TGLs = 6-7.1,7-7.1<br>Testes | Bilateral, Interstit Cell                                | Adenoma   |  |
| Note: ADENOMA TGLs = 3-6,4-6<br>Thymus            |  | Pigmentation  | Minimal  |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                   |                        |
|-----------------------|-------------------------------|-------------------|------------------------|
| <b>ANIMAL ID:</b> 108 | <b>TRT#:</b> 2                | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 54 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Dead | <b>HISTO:</b>          |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                          |                         |                 |                         |
|--------------------------|-------------------------|-----------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone            | Bone Marrow             |
| Brain                    | Epididymis              | Esophagus       | Intestine Large - Colon |
| Intestine Large - Rectum | Kidney                  | Liver           | Lymph Node - Mandibular |
| Lymph Node - Mesenteric  | Nose                    | Pituitary Gland | Preputial Gland         |
| Prostate                 | Salivary Glands         | Seminal Vesicle | Skin                    |
| Spleen                   | Stomach - Glandular     | Testes          | Thymus                  |
| Trachea                  | Urinary Bladder         |                 |                         |

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**MISSING**

|                         |               |                   |  |
|-------------------------|---------------|-------------------|--|
| Intestine Large - Cecum | Mammary Gland | Parathyroid Gland |  |
|-------------------------|---------------|-------------------|--|

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**AUTO PRECLUDES DIAG.**

|                            |                         |                           |                    |
|----------------------------|-------------------------|---------------------------|--------------------|
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic |
| Pancreas                   | Thyroid Gland           |                           |                    |

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**OBSERVATIONS**

|                                 |             |                |          |
|---------------------------------|-------------|----------------|----------|
| Heart                           |             | Cardiomyopathy | Minimal  |
| Lung                            |             | Congestion     | Moderate |
| Note: CONGESTION TGLs = 1-1+2   |             |                |          |
| Nose                            |             |                |          |
| Note: BLOOD IN NASAL CAVITY     |             |                |          |
| Stomach                         | Forestomach | Hyperkeratosis | Moderate |
| Note: HYPERKERATOSIS TGLs = 5-8 |             |                |          |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 109

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                    | Brain                    | Epididymis              |
| Esophagus                 | Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     | Parathyroid Gland       |
| Pituitary Gland           | Preputial Gland         | Prostate                 | Salivary Glands         |
| Seminal Vesicle           | Skin                    | Stomach - Glandular      | Thyroid Gland           |
| Trachea                   | Urinary Bladder         |                          |                         |

**MISSING**

|                         |               |        |
|-------------------------|---------------|--------|
| Intestine Large - Colon | Mammary Gland | Thymus |
|-------------------------|---------------|--------|

**OBSERVATIONS**

|                                       |                |                                  |                      |
|---------------------------------------|----------------|----------------------------------|----------------------|
| Adrenal Gland                         | Medulla        | Pheochromocytoma Benign          |                      |
| Bone Marrow                           |                | Pigmentation                     | Minimal              |
| Heart                                 |                | Cardiomyopathy                   | Mild                 |
| Intestine Small                       | Duodenum       | Pigmentation                     | Minimal              |
| Kidney                                |                | Nephropathy                      | Mild                 |
| Liver                                 |                | Basophilic Focus                 |                      |
|                                       |                | Fatty Change                     | Focal, Minimal       |
|                                       |                | Hepatocellular Adenoma           | Multiple             |
|                                       |                | Pigmentation                     | Minimal              |
| Note: [ HEPATOCLR ADEN ] TGLs = 5-3.1 |                |                                  |                      |
| Lung                                  |                | Congestion                       | Mild                 |
|                                       | Alveolar Epith | Hyperplasia                      | Mild                 |
|                                       |                | Infiltration Cellular            | Histiocyte, Moderate |
| Note: CONGESTION TGLs = 2-1+2         |                |                                  |                      |
| Lymph Node                            | Mesenteric     | Infiltration Cellular            | Histiocyte, Mild     |
|                                       | Mandibular     | Pigmentation                     | Mild                 |
|                                       | Mediastinal    | Pigmentation                     | Mild                 |
|                                       | Mesenteric     | Pigmentation                     | Mild                 |
| Pancreas                              | Acinus         | Hyperplasia                      | Mild                 |
| Spleen                                |                | Hematopoietic Cell Proliferation | Mild                 |
|                                       |                | Infiltration Cellular            | Histiocyte, Mild     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 109

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|         |                           |                |                   |
|---------|---------------------------|----------------|-------------------|
|         |                           | Pigmentation   | Hemosiderin, Mild |
|         |                           | Pigmentation   | Mild              |
| Stomach | Forestomach               | Acanthosis     | Minimal           |
|         | Forestomach               | Hyperkeratosis | Mild              |
| Testes  | Bilateral, Interstit Cell | Adenoma        |                   |
|         | Seminif Tub               | Atrophy        | Mild              |
|         | Interstit Cell            | Hyperplasia    | Mild              |

Note: ADENOMA TGLs = 3-6

PRIMARY CAUSE OF DEATH

-

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 111

TRT#: 2

SEX: Male

DAY ON TEST: 740

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Brain                   |
| Epididymis                | Esophagus                | Harderian Gland            | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Lymph Node - Mandibular  | Nose                       | Pancreas                |
| Parathyroid Gland         | Pituitary Gland          | Preputial Gland            | Prostate                |
| Salivary Glands           | Seminal Vesicle          | Skin                       | Stomach - Glandular     |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

MISSING

Mammary Gland

OBSERVATIONS

|                                   |             |                       |                  |
|-----------------------------------|-------------|-----------------------|------------------|
| Bone Marrow                       |             | Pigmentation          | Mild             |
| Eye                               | Lens        | Cataract              | Moderate         |
|                                   |             | Hemorrhage            | Mild             |
| [ Cataract TGLS = 1-14 ]          |             |                       |                  |
| Heart                             |             | Cardiomyopathy        | Mild             |
| Islets, Pancreatic                |             | Adenoma               |                  |
| Kidney                            | Papilla     | Mineralization        | Mild             |
|                                   |             | Nephropathy           | Minimal          |
| Liver                             |             | Basophilic Focus      |                  |
|                                   |             | Clear Cell Focus      |                  |
|                                   | Bile Duct   | Hyperplasia           | Mild             |
|                                   |             | Leukemia Mononuclear  |                  |
|                                   |             | Pigmentation          | Minimal          |
| Note: CLEAR CL FOCUS TGLs = 9-3   |             |                       |                  |
| Lung                              |             | Infiltration Cellular | Histiocyte, Mild |
|                                   |             | Pigmentation          | Minimal          |
| Note: INFILTRAT CELL TGLs = 3-1+2 |             |                       |                  |
| Lymph Node                        | Mesenteric  | Infiltration Cellular | Histiocyte, Mild |
|                                   | Mediastinal | Pigmentation          | Mild             |
|                                   | Mesenteric  | Pigmentation          | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 111 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 740 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|  |                  |   |  |   |
|--|------------------|---|--|---|
| Note: PIGMENT<br>Spleen  | TGLs = 2-2,10-15 | Renal   | Pigmentation   | Mild                                      |
| Note: SUGGESTION OF LEUKEMIA IN LIVER AND SPLEEN<br>Note: FIBROSIS | TGLs = 5-3.1     |   | Fibrosis<br>Hematopoietic Cell Proliferation<br>Leukemia Mononuclear<br>Pigmentation<br>Pigmentation | Mild<br>Mild<br>Hemosiderin, Mild<br>Mild |
| Stomach<br>Testes  |                  | Forestomach<br>Bilateral, Interstit Cell<br>Seminif Tub | Acanthosis<br>Adenoma<br>Atrophy   | Mild<br>Mild                              |
| Note: ADENOMA<br>Thymus  | TGLs = 7-6       |   | Pigmentation   | Minimal                                   |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 113

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 717

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Kidney                   |
| Nose                    | Pancreas                  | Parathyroid Gland       | Prostate                 |
| Salivary Glands         | Seminal Vesicle           | Skin                    | Trachea                  |
| Urinary Bladder         |                           |                         |                          |

**OBSERVATIONS**

|   |                |                       |                          |
|---|----------------|-----------------------|--------------------------|
| Adrenal Gland                           | Cortex         | Hyperplasia           | Mild                     |
|   | Medulla        | Hyperplasia           | Mild                     |
| Heart                                   |                | Cardiomyopathy        | Mild                     |
| Intestine Small                         | Duodenum       | Pigmentation          | Minimal                  |
| Liver                                   |                | Basophilic Focus      |                          |
|   |                | Eosinophilic Focus    |                          |
|   |                | Fatty Change          | Focal, Mild              |
|   |                | Pigmentation          | Minimal                  |
| Lung                                    | Alveolar Epith | Hyperplasia           | Minimal                  |
|   |                | Infiltration Cellular | Histiocyte, Minimal      |
| [ Infiltration Cellular TGLS = 11-1.1 ] |                |                       |                          |
| Lymph Node                              | Mesenteric     | Infiltration Cellular | Histiocyte, Mild         |
|   | Mandibular     | Pigmentation          | Minimal                  |
|   | Mediastinal    | Pigmentation          | Mild                     |
|   | Mesenteric     | Pigmentation          | Mild                     |
| Note: PIGMENT TGLs = 10-2               |                |                       |                          |
| Mammary Gland                           |                | Fibroadenoma          |                          |
| [ Fibroadenoma TGLS = 2-13+13.1 ]       |                |                       |                          |
| Pituitary Gland                         | Pars Distalis  | Adenoma               |                          |
|   | Pars Distalis  | Angiectasis           | Mild                     |
| Note: ADENOMA TGLs = 12-8               |                |                       |                          |
| Preputial Gland                         |                | Inflammation          | Chronic Active, Moderate |
| Note: INFLAMMATION TGLs = 3-10          |                |                       |                          |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 113

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 717

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |  |   |   |
|--|--|---|---|
| Spleen   |  | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation<br>Pigmentation | Moderate<br>Histiocyte, Mild<br>Mild<br>Hemosiderin, Mild |
| Stomach  | Forestomach<br>Glandular<br>Glandular    | Acanthosis<br>Erosion<br>Fibrosis   | Mild<br>Minimal<br>Minimal                                |
| Testes   | Bilateral, Interstit Cell<br>Seminif Tub | Adenoma<br>Atrophy  | Marked  |
| Note: ADENOMA                                  | TGLs = 5-6                               |   |   |
| Note: ATROPHY                                  | TGLs = 4-6                               |   |   |
| Thymus   |  | Pigmentation  | Minimal   |
| Note: PIGMENT                                  | TGLs = 9-2                               |   |   |
| Note: BLOOD AROUND THYMUS AND MEDIASTINAL L.N. |  |   |   |
| Thyroid Gland                                  | C Cell                                   | Adenoma   |   |
| PRIMARY CAUSE OF DEATH                         | -  |   |   |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:26  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 114      TRT#: 2      SEX: Male      DAY ON TEST: 628  
 DOSE: 0.025 G/KG 79 LM      DISP: Dead      HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Epididymis                 | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Preputial Gland         | Prostate                  |
| Salivary Glands          | Seminal Vesicle            | Skin                    | Spleen                    |
| Thymus                   | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|                   |               |                       |                        |
|-------------------|---------------|-----------------------|------------------------|
| Heart             |               | Cardiomyopathy        | Mild                   |
| Intestine Large   | Colon         | Parasite              | Mild                   |
| Kidney            |               | Nephropathy           | Minimal                |
|                   | Renal Tubule  | Pigmentation          | Minimal                |
| Liver             |               | Basophilic Focus      |                        |
|                   |               | Eosinophilic Focus    |                        |
|                   |               | Fatty Change          | Focal, Minimal         |
| Lung              |               | Edema                 | Mild                   |
|                   |               | Inflammation          | Granulomatous, Minimal |
|                   |               | Pigmentation          | Mild                   |
| Note: PIGMENT     | TGLs = 1-1+2  |                       |                        |
| Lymph Node        | Mediastinal   | Infiltration Cellular | Histiocyte, Minimal    |
|                   | Mesenteric    | Infiltration Cellular | Histiocyte, Minimal    |
|                   | Mandibular    | Pigmentation          | Minimal                |
| Nose              |               | Schwannoma Benign     |                        |
| Pancreas          | Acinus        | Hyperplasia           | Mild                   |
| Pituitary Gland   | Pars Distalis | Hyperplasia           | Mild                   |
| Note: HYPERPLASIA | TGLs = 5-8    |                       |                        |
| Stomach           | Forestomach   | Acanthosis            | Minimal                |
|                   | Glandular     | Fibrosis              | Minimal                |
|                   | Glandular     | Pigmentation          | Minimal                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 114

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 628

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Testes

Bilateral, Interstit Cell  
Seminif Tub  
Interstit Cell

Adenoma  
Atrophy  
Hyperplasia

Mild  
Minimal

Note: ADENOMA TGLs = 2-6

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 115

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Brain                      | Epididymis              |
| Esophagus                 | Eye                      | Harderian Gland            | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    |
| Pancreas                  | Parathyroid Gland        | Preputial Gland            | Prostate                |
| Salivary Glands           | Seminal Vesicle          | Skin                       | Stomach - Forestomach   |
| Stomach - Glandular       | Thyroid Gland            | Trachea                    | Urinary Bladder         |

**MISSING**

Thymus

**OBSERVATIONS**

|                                   |            |                            |                        |
|-----------------------------------|------------|----------------------------|------------------------|
| Adrenal Gland                     | Medulla    | Hyperplasia                | Mild                   |
| Bone Marrow                       |            | Pigmentation               | Minimal                |
| Heart                             |            | Cardiomyopathy             | Mild                   |
| Kidney                            |            | Nephropathy                | Mild                   |
| Liver                             |            | Basophilic Focus           |                        |
|                                   |            | Clear Cell Focus           |                        |
|                                   |            | Hepatodiaphragmatic Nodule |                        |
|                                   |            | Inflammation               | Granulomatous, Minimal |
|                                   |            | Pigmentation               | Minimal                |
| Note: ANOM HEPAT LOB TGLs = 8-3.1 |            |                            |                        |
| Note: CLEAR CL FOCUS TGLs = 9-3   |            |                            |                        |
| Lung                              |            | Atelectasis                | Minimal                |
|                                   |            | Infiltration Cellular      | Histiocyte, Mild       |
|                                   |            | Inflammation               | Granulomatous, Minimal |
|                                   |            | Pigmentation               | Minimal                |
|                                   |            | Pigmentation               | Cholesterol, Mild      |
| Note: INFILTRAT CELL TGLs = 3-1   |            |                            |                        |
| Note: PIGMENT TGLs = 4-1+1.1      |            |                            |                        |
| Lymph Node                        | Mesenteric | Infiltration Cellular      | Histiocyte, Mild       |
|                                   | Mesenteric | Pigmentation               | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 115 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 744 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                    |             |                                  |                     |
|--------------------|-------------|----------------------------------|---------------------|
| Note: PIGMENT      | TGLs = 7-8  |                                  |                     |
| Mammary Gland      |             | Fibroadenoma                     |                     |
| Note: FIBROADENOMA | TGLs = 2-14 |                                  |                     |
| Pituitary Gland    |             | Pars Distalis                    | Adenoma             |
|                    |             | Pars Distalis                    | Angiectasis         |
|                    |             |                                  | Mild                |
| Note: ANGIECTASIS  | TGLs = 10-8 |                                  |                     |
| Note: ADENOMA      | TGLs = 11-8 |                                  |                     |
| Spleen             |             | Hematopoietic Cell Proliferation | Mild                |
|                    |             | Infiltration Cellular            | Histiocyte, Minimal |
|                    |             | Pigmentation                     | Hemosiderin, Mild   |
|                    |             | Pigmentation                     | Minimal             |
| Testes             |             | Bilateral, Interstit Cell        |                     |
|                    |             | Seminif Tub                      | Adenoma             |
|                    |             | Interstit Cell                   | Atrophy             |
|                    |             |                                  | Mild                |
| Note: ADENOMA      | TGLs = 5-6  |                                  | Hyperplasia         |
|                    |             |                                  | Minimal             |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 116

TRT#: 2

SEX: Male

DAY ON TEST: 740

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Parathyroid Gland        |
| Preputial Gland         | Prostate                  | Salivary Glands         | Seminal Vesicle          |
| Skin                    | Stomach - Forestomach     | Trachea                 | Urinary Bladder          |

MISSING

|               |        |
|---------------|--------|
| Mammary Gland | Thymus |
|---------------|--------|

OBSERVATIONS

|  |              |                         |                  |
|--|--------------|-------------------------|------------------|
| Adrenal Gland                          | Cortex       | Hyperplasia             | Mild             |
|  | Medulla      | Hyperplasia             | Mild             |
|  | Medulla      | Pheochromocytoma Benign |                  |
| Eye                                    | Lens         | Cataract                | Mild             |
| Note: CATARACT                         | TGLs = 2-13  |                         |                  |
| Heart                                  |              | Cardiomyopathy          | Mild             |
| Intestine Small                        | Duodenum     | Pigmentation            | Minimal          |
| Kidney                                 | Papilla      | Mineralization          | Minimal          |
|  |              | Nephropathy             | Mild             |
|  | Renal Tubule | Pigmentation            | Minimal          |
| Liver                                  |              | Eosinophilic Focus      |                  |
|  | Bile Duct    | Hyperplasia             | Mild             |
|  |              | Leukemia Mononuclear    |                  |
|  |              | Pigmentation            | Mild             |
| Note: LEUKEMIA MONUC                   | TGLs = 10-3  |                         |                  |
| Lung                                   |              | Infiltration Cellular   | Histiocyte, Mild |
|  |              | Pigmentation            | Minimal          |
| [ Infiltration Cellular TGLS = 4-1+2 ] |              |                         |                  |
| Lymph Node                             | Mesenteric   | Infiltration Cellular   | Histiocyte, Mild |
|  | Mandibular   | Pigmentation            | Minimal          |
|  | Mediastinal  | Pigmentation            | Mild             |
|  | Mesenteric   | Pigmentation            | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 116 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 740 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                               |              |                           |                      |                   |
|-------------------------------|--------------|---------------------------|----------------------|-------------------|
| Note: PIGMENT                 | TGLs = 8-8   |                           |                      |                   |
| Nose                          |              |                           | Fungus               | Mild              |
|                               |              |                           | Inflammation         | Acute, Mild       |
| Pancreas                      |              | Acinus                    | Hyperplasia          | Mild              |
| Pituitary Gland               |              | Pars Distalis             | Adenoma              |                   |
|                               |              | Pars Distalis             | Angiectasis          | Moderate          |
| Note: ADENOMA                 | TGLs = 11-8  |                           |                      |                   |
| Spleen                        |              |                           | Angiectasis          | Mild              |
|                               |              |                           | Fibrosis             | Moderate          |
|                               |              |                           | Leukemia Mononuclear |                   |
|                               |              |                           | Pigmentation         | Hemosiderin, Mild |
|                               |              |                           | Pigmentation         | Mild              |
| Note: ANGIECTASIS             | TGLs = 6-3.1 |                           |                      |                   |
| Note: FIBROSIS                | TGLs = 7-3.1 |                           |                      |                   |
| Stomach                       |              | Glandular                 | Pigmentation         | Minimal           |
| Testes                        |              | Bilateral, Interstit Cell | Adenoma              |                   |
|                               |              | Interstit Cell            | Hyperplasia          | Mild              |
| Note: ADENOMA                 | TGLs = 5-6   |                           |                      |                   |
| Thyroid Gland                 |              | C Cell                    | Hyperplasia          | Mild              |
| <b>PRIMARY CAUSE OF DEATH</b> |              | -                         |                      |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 118

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 740

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Bone Marrow               | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Lymph Node - Mandibular |
| Mammary Gland            | Parathyroid Gland       | Preputial Gland           | Prostate                |
| Salivary Glands          | Seminal Vesicle         | Skin                      | Stomach - Forestomach   |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

**OBSERVATIONS**

|                                   |            |                         |                        |
|-----------------------------------|------------|-------------------------|------------------------|
| Adrenal Gland                     | Medulla    | Pheochromocytoma Benign |                        |
| Brain                             |            |                         |                        |
| Note: DISTENDED VENTRICLES        |            |                         |                        |
| Heart                             |            | Cardiomyopathy          | Moderate               |
| Intestine Small                   | Duodenum   | Pigmentation            | Minimal                |
| Islets, Pancreatic                |            | Adenoma                 |                        |
| Kidney                            | Papilla    | Mineralization          | Minimal                |
|                                   |            | Nephropathy             | Moderate               |
| Liver                             |            | Basophilic Focus        |                        |
|                                   |            | Clear Cell Focus        |                        |
|                                   |            | Inflammation            | Granulomatous, Minimal |
|                                   |            | Pigmentation            | Mild                   |
| Lung                              |            | Infiltration Cellular   | Histiocyte, Mild       |
|                                   |            | Inflammation            | Granulomatous, Minimal |
|                                   |            | Pigmentation            | Cholesterol, Mild      |
|                                   |            | Pigmentation            | Minimal                |
| Note: [ INFLAMMATION ] TGLs = 3-1 |            |                         |                        |
| Note: INFILTRAT CELL TGLs = 2-1+2 |            |                         |                        |
| Lymph Node                        | Mesenteric | Pigmentation            | Mild                   |
| Note: PIGMENT TGLs = 7-8          |            |                         |                        |
| Nose                              |            | Fungus                  | Mild                   |
|                                   |            | Inflammation            | Acute, Mild            |
| Pancreas                          | Acinus     | Adenoma                 |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 118

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 740

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                 |             |                           |                                  |                     |
|-----------------|-------------|---------------------------|----------------------------------|---------------------|
| Note: ADENOMA   | TGLs = 6-9  |                           |                                  |                     |
| Pituitary Gland |             | Pars Distalis             | Adenoma                          |                     |
|                 |             | Pars Distalis             | Angiectasis                      | Moderate            |
| Note: ADENOMA   | TGLs = 11-8 |                           |                                  |                     |
| Spleen          |             |                           | Depletion Lymphoid               | Mild                |
|                 |             |                           | Hematopoietic Cell Proliferation | Mild                |
|                 |             |                           | Infiltration Cellular            | Histiocyte, Minimal |
|                 |             |                           | Pigmentation                     | Mild                |
|                 |             |                           | Pigmentation                     | Hemosiderin, Mild   |
| Note: CONGESTED |             |                           |                                  |                     |
| Stomach         |             | Glandular                 | Fibrosis                         | Mild                |
|                 |             | Glandular                 | Metaplasia                       | Mild                |
|                 |             | Fat                       | Proliferation                    | Minimal             |
| Testes          |             | Bilateral, Interstit Cell | Adenoma                          |                     |
|                 |             | Seminif Tub               | Atrophy                          | Mild                |
|                 |             | Interstit Cell            | Hyperplasia                      | Mild                |
| Note: ADENOMA   | TGLs = 4-6  |                           |                                  |                     |
| Thymus          |             |                           | Depletion Lymphoid               | Mild                |
|                 |             |                           | Pigmentation                     | Minimal             |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 119

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 603

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                    | Brain                    | Epididymis              |
| Esophagus                 | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular  | Mammary Gland           |
| Nose                      | Parathyroid Gland       | Pituitary Gland          | Preputial Gland         |
| Prostate                  | Salivary Glands         | Seminal Vesicle          | Skin                    |
| Spleen                    | Stomach - Forestomach   | Thymus                   | Thyroid Gland           |
| Trachea                   | Urinary Bladder         |                          |                         |

**AUTO PRECLUDES DIAG.**

Intestine Large - Cecum

**OBSERVATIONS**

|                                       |              |                            |                     |
|---------------------------------------|--------------|----------------------------|---------------------|
| Adrenal Gland                         | Medulla      | Pheochromocytoma Malignant |                     |
| Note: PHEOCHROM MAL TGLs = 4-8.1      |              |                            |                     |
| Bone Marrow                           |              | Pigmentation               | Minimal             |
| Heart                                 |              | Cardiomyopathy             | Mild                |
| Intestine Small                       | Duodenum     | Pigmentation               | Minimal             |
| Kidney                                | Renal Tubule | Pigmentation               | Minimal             |
| Liver                                 |              | Basophilic Focus           |                     |
|                                       |              | Clear Cell Focus           |                     |
|                                       |              | Fatty Change               | Focal, Minimal      |
|                                       | Bile Duct    | Hyperplasia                | Mild                |
|                                       |              | Pigmentation               | Minimal             |
| Lung                                  |              | Congestion                 | Moderate            |
|                                       |              | Infiltration Cellular      | Histiocyte, Minimal |
|                                       |              | Inflammation               | Acute, Mild         |
| Note: CONGESTION TGLs = 3-1+2         |              |                            |                     |
| Note: YELLOW GLOBULES IN SOME ALVEOLI |              |                            |                     |
| Lymph Node                            | Mesenteric   | Infiltration Cellular      | Histiocyte, Mild    |
|                                       | Mesenteric   | Pigmentation               | Minimal             |
| Pancreas                              | Acinus       | Hyperplasia                | Mild                |
| Stomach                               | Glandular    | Fibrosis                   | Minimal             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 119

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 603

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                      |                           |             |         |
|--------------------------------------|---------------------------|-------------|---------|
| Note: AREAS OF INTESTINAL METAPLASIA | Glandular                 | Metaplasia  | Minimal |
| Testes                               | Bilateral, Interstit Cell | Adenoma     |         |
|                                      | Seminif Tub               | Atrophy     | Mild    |
|                                      | Interstit Cell            | Hyperplasia | Mild    |
| PRIMARY CAUSE OF DEATH               | -                         |             |         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 120

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 701

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                        |                         |                 |                     |
|------------------------|-------------------------|-----------------|---------------------|
| Adrenal Gland - Cortex | Bone                    | Brain           | Esophagus           |
| Liver                  | Lymph Node - Mandibular | Mammary Gland   | Nose                |
| Parathyroid Gland      | Pituitary Gland         | Preputial Gland | Prostate            |
| Salivary Glands        | Seminal Vesicle         | Skin            | Stomach - Glandular |
| Trachea                |                         |                 |                     |

**AUTO PRECLUDES DIAG.**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Bone Marrow              | Epididymis                 | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mesenteric    | Pancreas                | Spleen                    |
| Thyroid Gland            | Urinary Bladder            |                         |                           |

**OBSERVATIONS**

|                                 |                           |                         |                  |
|---------------------------------|---------------------------|-------------------------|------------------|
| Adrenal Gland                   | Medulla                   | Pheochromocytoma Benign |                  |
| Heart                           |                           | Cardiomyopathy          | Mild             |
| Kidney                          | Papilla                   | Mineralization          | Minimal          |
| Lung                            |                           | Atelectasis             | Minimal          |
|                                 |                           | Edema                   | Mild             |
|                                 |                           | Fibrosis                | Minimal          |
|                                 |                           | Infiltration Cellular   | Histiocyte, Mild |
|                                 |                           | Pigmentation            | Minimal          |
| Stomach                         | Forestomach               | Hyperkeratosis          | Mild             |
| Note: HYPERKERATOSIS TGLs = 4-7 |                           |                         |                  |
| Testes                          | Bilateral, Interstit Cell | Adenoma                 |                  |
| Note: ADENOMA TGLs = 2-6        |                           |                         |                  |
| Thymus                          |                           | Pigmentation            | Minimal          |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 122

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 697

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Brain                     | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Nose                       | Parathyroid Gland       | Preputial Gland           | Prostate                 |
| Salivary Glands            | Seminal Vesicle         | Skin                      | Thyroid Gland            |
| Trachea                    | Urinary Bladder         |                           |                          |

**OBSERVATIONS**

|  |               |                                  |                   |
|--|---------------|----------------------------------|-------------------|
| Adrenal Gland                          | Medulla       | Hyperplasia                      | Mild              |
| Bone Marrow                            |               | Pigmentation                     | Minimal           |
| Heart                                  |               | Cardiomyopathy                   | Mild              |
| Kidney                                 |               | Nephropathy                      | Mild              |
| Liver                                  |               | Basophilic Focus                 |                   |
|  |               | Pigmentation                     | Minimal           |
| Lung                                   |               | Infiltration Cellular            | Histiocyte, Mild  |
|  |               | Pigmentation                     | Minimal           |
| [ Infiltration Cellular TGLS = 2-1+2 ] |               |                                  |                   |
| Lymph Node                             | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild  |
|  | Mandibular    | Pigmentation                     | Minimal           |
|  | Mediastinal   | Pigmentation                     | Mild              |
|  | Mesenteric    | Pigmentation                     | Mild              |
| Mammary Gland                          |               | Galactocele                      |                   |
| [ Galactocele TGLS = 1-10 ]            |               |                                  |                   |
| Pancreas                               | Acinus        | Hyperplasia                      | Mild              |
| Pituitary Gland                        | Pars Distalis | Adenoma                          |                   |
|  | Pars Distalis | Angiectasis                      | Mild              |
| Note: ADENOMA TGLs = 4-8               |               |                                  |                   |
| Spleen                                 |               | Hematopoietic Cell Proliferation | Mild              |
|  |               | Pigmentation                     | Hemosiderin, Mild |
|  |               | Pigmentation                     | Mild              |
| Stomach                                | Forestomach   | Acanthosis                       | Minimal           |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 122

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 697

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                |              |         |
|------------------------|----------------|--------------|---------|
|                        | Glandular      | Fibrosis     | Mild    |
|                        | Glandular      | Hyperplasia  | Minimal |
|                        | Glandular      | Metaplasia   | Minimal |
| Testes                 | Interstit Cell | Hyperplasia  | Minimal |
| Thymus                 |                | Pigmentation | Minimal |
| PRIMARY CAUSE OF DEATH | -              |              |         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 124

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Parathyroid Gland       |
| Pituitary Gland          | Preputial Gland         | Prostate                  | Salivary Glands         |
| Seminal Vesicle          | Skin                    | Stomach - Forestomach     | Stomach - Glandular     |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

**OBSERVATIONS**

|                                   |                           |                                  |                     |
|-----------------------------------|---------------------------|----------------------------------|---------------------|
| Bone Marrow                       |                           | Pigmentation                     | Mild                |
| Heart                             |                           | Cardiomyopathy                   | Moderate            |
| Intestine Small                   | Duodenum                  | Pigmentation                     | Minimal             |
| Islets, Pancreatic                |                           | Hyperplasia                      | Mild                |
| Kidney                            | Papilla                   | Mineralization                   | Minimal             |
| Liver                             |                           | Basophilic Focus                 |                     |
|                                   |                           | Pigmentation                     | Minimal             |
| Lung                              |                           | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL TGLs = 4-1+2 |                           |                                  |                     |
| Lymph Node                        | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild    |
|                                   | Mandibular                | Pigmentation                     | Minimal             |
|                                   | Mesenteric                | Pigmentation                     | Mild                |
| Mammary Gland                     |                           | Fibroadenoma                     |                     |
| [ Fibroadenoma TGLS = 1-13+13.1 ] |                           |                                  |                     |
| Nose                              |                           | Inflammation                     | Acute, Mild         |
| Pancreas                          | Acinus                    | Hyperplasia                      | Mild                |
| Spleen                            |                           | Hematopoietic Cell Proliferation | Mild                |
|                                   |                           | Infiltration Cellular            | Histiocyte, Minimal |
|                                   |                           | Pigmentation                     | Mild                |
|                                   |                           | Pigmentation                     | Hemosiderin, Mild   |
| Testes                            | Bilateral, Interstit Cell | Adenoma                          |                     |
|                                   | Seminif Tub               | Atrophy                          | Mild                |
| Note: ADENOMA TGLs = 3-6          |                           |                                  |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 124

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|        |              |         |
|--------|--------------|---------|
| Thymus | Pigmentation | Minimal |
|--------|--------------|---------|

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 125

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Parathyroid Gland        | Preputial Gland         | Prostate                  | Salivary Glands         |
| Seminal Vesicle          | Skin                    | Stomach - Forestomach     | Thymus                  |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

**OBSERVATIONS**

|  |               |                       |                     |
|--|---------------|-----------------------|---------------------|
| Bone Marrow  |               | Pigmentation          | Minimal             |
| Heart  |               | Cardiomyopathy        | Mild                |
| Intestine Small  | Duodenum      | Pigmentation          | Minimal             |
| Kidney   |               | Nephropathy           | Mild                |
| Liver  |               | Basophilic Focus      |                     |
|  |               | Eosinophilic Focus    |                     |
|  |               | Inflammation          | Granulomatous, Mild |
|  |               | Pigmentation          | Mild                |
| Lung   |               | Infiltration Cellular | Histiocyte, Mild    |
|  |               | Pigmentation          | Mild                |
| Lymph Node   | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|  | Pancreatic    | Infiltration Cellular | Histiocyte, Mild    |
|  | Mandibular    | Pigmentation          | Minimal             |
|  | Mediastinal   | Pigmentation          | Mild                |
|  | Mesenteric    | Pigmentation          | Mild                |
|  | Pancreatic    | Pigmentation          | Mild                |
| Mammary Gland  |               | Fibroadenoma          | Multiple            |
| Note: FIBROADENOMA TGLs = 1-13,2-14                        |               |                       |                     |
| Note: THIS NEOPLASM HAS MORE OF THE FEATURES OF AN ADENOMA |               |                       |                     |
| Nose   |               | Fungus                | Moderate            |
|  |               | Inflammation          | Acute, Mild         |
| Pancreas   | Acinus        | Hyperplasia           | Mild                |
| Pituitary Gland  | Pars Distalis | Adenoma               | Multiple            |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 125 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                         |                |                           |                                  |                   |
|-------------------------|----------------|---------------------------|----------------------------------|-------------------|
| Note: ADENOMA<br>Spleen | TGLs = 5-8     | Pars Distalis             | Angiectasis                      | Mild              |
|                         |                |                           | Hematopoietic Cell Proliferation | Mild              |
|                         |                |                           | Infiltration Cellular            | Histiocyte, Mild  |
|                         |                |                           | Pigmentation                     | Hemosiderin, Mild |
|                         |                |                           | Pigmentation                     | Mild              |
| Stomach                 |                | Glandular                 | Fibrosis                         | Mild              |
|                         |                | Glandular                 | Metaplasia                       | Minimal           |
|                         |                | Glandular                 | Pigmentation                     | Mild              |
|                         |                | Fat                       | Proliferation                    | Minimal           |
| Testes                  |                | Bilateral, Interstit Cell | Adenoma                          |                   |
|                         |                | Seminif Tub               | Atrophy                          | Mild              |
| Note: ADENOMA           | TGLs = 3-6,4-6 |                           |                                  |                   |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 126

**TRT#:** 2  
**DOSE:** 0.025 G/KG 79 LM

**SEX:** Male  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 744  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Medulla | Bone                      | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Preputial Gland         | Prostate                  | Salivary Glands         | Seminal Vesicle          |
| Skin                    | Thyroid Gland             | Trachea                 | Urinary Bladder          |

**MISSING**

Lymph Node - Mandibular

**OBSERVATIONS**

|   |   |                       |                  |
|---|---|-----------------------|------------------|
| Adrenal Gland<br>Note: HYPERPLASIA TGLs = 9-8                                   | Cortex                                  | Hyperplasia           | Mild             |
| Bone Marrow   |   | Pigmentation          | Minimal          |
| Heart   |   | Cardiomyopathy        | Moderate         |
| Intestine Small   | Duodenum                                | Pigmentation          | Minimal          |
| Kidney  |   | Nephropathy           | Mild             |
| Liver   |   | Basophilic Focus      |                  |
|   |   | Clear Cell Focus      |                  |
|   |   | Pigmentation          | Minimal          |
| [ Basophilic Focus TGLS = 6-3 ]   |   |                       |                  |
| [ Clear Cell Focus TGLS = 7-3 ]   |   |                       |                  |
| Lung<br><br>Note: ATELECTASIS TGLs = 8-1+2<br>Note: INFILTRAT CELL TGLs = 2-1+2 |   | Atelectasis           | Mild             |
|   |   | Infiltration Cellular | Histiocyte, Mild |
|   |   | Pigmentation          | Mild             |
| Lymph Node<br><br>Note: PIGMENT TGLs = 1-2.1                                    | Mesenteric<br>Mediastinal<br>Mesenteric | Infiltration Cellular | Histiocyte, Mild |
|   |   | Pigmentation          | Mild             |
|   |   | Pigmentation          | Mild             |
| Nose  |   | Fungus                | Moderate         |
|   |   | Inflammation          | Acute, Moderate  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 126      **TRT#:** 2      **SEX:** Male      **DAY ON TEST:** 744  
**DOSE:** 0.025 G/KG 79 LM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                   |                           |                                  |                      |
|-------------------|---------------------------|----------------------------------|----------------------|
| Pancreas          | Acinus                    | Adenoma                          |                      |
|                   | Acinus                    | Hyperplasia                      | Mild                 |
|                   | Artery                    | Inflammation                     | Chronic Active, Mild |
| Note: ADENOMA     | TGLs = 4-9                |                                  |                      |
| Parathyroid Gland |                           | Hyperplasia                      | Mild                 |
| Pituitary Gland   | Pars Distalis             | Adenoma                          |                      |
| Spleen            |                           | Hematopoietic Cell Proliferation | Mild                 |
|                   |                           | Pigmentation                     | Hemosiderin, Mild    |
|                   |                           | Pigmentation                     | Mild                 |
| Stomach           | Forestomach               | Acanthosis                       | Mild                 |
|                   | Glandular                 | Fibrosis                         | Mild                 |
|                   | Forestomach               | Hyperkeratosis                   | Mild                 |
|                   | Glandular                 | Metaplasia                       | Minimal              |
| Testes            | Bilateral, Interstit Cell | Adenoma                          |                      |
|                   | Seminif Tub               | Atrophy                          | Mild                 |
| Note: ADENOMA     | TGLs = 3-6                |                                  |                      |
| Thymus            |                           | Depletion Lymphoid               | Mild                 |
|                   |                           | Pigmentation                     | Minimal              |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 127

**TRT#:** 2  
**DOSE:** 0.025 G/KG 79 LM

**SEX:** Male  
**DISP:** Moribund

**DAY ON TEST:** 583  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Parathyroid Gland       | Preputial Gland           | Prostate                 |
| Salivary Glands            | Seminal Vesicle         | Skin                      | Spleen                   |
| Stomach - Forestomach      | Thymus                  | Thyroid Gland             | Trachea                  |

**MISSING**

|                         |               |
|-------------------------|---------------|
| Lymph Node - Mesenteric | Mammary Gland |
|-------------------------|---------------|

**OBSERVATIONS**

|                                     |               |                        |                  |
|-------------------------------------|---------------|------------------------|------------------|
| Adrenal Gland                       | Medulla       | Hyperplasia            | Minimal          |
| Epididymis                          |               | Mesothelioma Malignant |                  |
| Note: MESOTHELIO MAL TGLs = 4-14    |               |                        |                  |
| Heart                               |               | Cardiomyopathy         | Mild             |
| Kidney                              | Renal Tubule  | Pigmentation           | Moderate         |
| Liver                               |               | Basophilic Focus       |                  |
| Note: PIGMENT IN PORTAL RADICLES    |               |                        |                  |
| Lung                                | Bronchiole    | Hyperplasia            | Minimal          |
|                                     |               | Infiltration Cellular  | Histiocyte, Mild |
| Lymph Node                          | Mediastinal   | Infiltration Cellular  | Histiocyte, Mild |
| Mesentery                           |               | Mesothelioma Malignant |                  |
| Note: MESOTHELIO MAL TGLs = 7-13+14 |               |                        |                  |
| Nose                                |               | Inflammation           | Acute, Moderate  |
| Note: MORE LIKE PURULENT RHINITIS   |               |                        |                  |
| Pancreas                            |               | Mesothelioma Malignant |                  |
| Note: MESOTHELIO MAL TGLs = 6-9     |               |                        |                  |
| Pituitary Gland                     | Pars Distalis | Hyperplasia            | Mild             |
|                                     | Pars Intermed | Hyperplasia            | Mild             |
| Spleen                              |               |                        |                  |
| Note: THICK FIBROUS CAPSULE         |               |                        |                  |
| Stomach                             | Glandular     | Hyperplasia            | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 127

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 583

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                  |  |  |                     |
|----------------------------------|--|--|---------------------|
| Testes                           | Glandular<br>Bilateral, Interstit Cell<br>Seminif Tub<br>Tunic | Metaplasia<br>Adenoma<br>Atrophy<br>Mesothelioma Malignant | Minimal<br><br>Mild |
| Note: ADENOMA<br>Urinary Bladder | TGLs = 5-6   | Mesothelioma Malignant                                     |                     |
| PRIMARY CAUSE OF DEATH           | -  |  |                     |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 128

TRT#: 2

SEX: Male

DAY ON TEST: 406

DOSE: 0.025 G/KG 79 LM

DISP: Accident

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Islets, Pancreatic  
Mammary Gland  
Preputial Gland  
Skin

Adrenal Gland - Medulla  
Epididymis  
Kidney  
Nose  
Prostate  
Spleen

Bone  
Esophagus  
Lung  
Pancreas  
Salivary Glands  
Testes

Bone Marrow  
Intestine Large - Rectum  
Lymph Node - Mandibular  
Pituitary Gland  
Seminal Vesicle  
Thymus

MISSING

Lymph Node - Mesenteric

Parathyroid Gland

AUTO PRECLUDES DIAG.

Intestine Large - Cecum  
Intestine Small - Jejunum

Intestine Large - Colon  
Thyroid Gland

Intestine Small - Duodenum  
Trachea

Intestine Small - Ileum  
Urinary Bladder

OBSERVATIONS

Heart  
Liver  
Stomach

Forestomach  
Glandular

Cardiomyopathy  
Fatty Change  
Acanthosis  
Fibrosis

Moderate  
Focal, Mild  
Minimal  
Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 132

TRT#: 2

SEX: Male

DAY ON TEST: 634

DOSE: 0.025 G/KG 79 LM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           |
| Pancreas                  | Pituitary Gland          | Preputial Gland            | Prostate                |
| Salivary Glands           | Seminal Vesicle          | Skin                       | Spleen                  |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |

MISSING

Parathyroid Gland

OBSERVATIONS

|        |                |                 |
|--------|----------------|-----------------|
| Heart  | Cardiomyopathy | Mild            |
| Kidney | Nephropathy    | Mild            |
| Liver  | Degeneration   | Cystic, Minimal |
|        | Fatty Change   | Focal, Minimal  |
| Lung   | Edema          | Moderate        |
|        | Inflammation   | Acute, Moderate |
|        | Mineralization | Minimal         |
|        | Pigmentation   | Mild            |

Note: PIGMENT TGLs = 2-1+2

Note: MORE LIKE BRONCHOPNEUMONIA

|            |             |                       |                  |
|------------|-------------|-----------------------|------------------|
| Lymph Node | Mediastinal | Infiltration Cellular | Histiocyte, Mild |
|            | Mesenteric  | Infiltration Cellular | Histiocyte, Mild |
| Nose       |             | Inflammation          | Acute, Mild      |
| Stomach    | Forestomach | Acanthosis            | Mild             |
|            | Glandular   | Erosion               | Minimal          |
|            | Glandular   | Fibrosis              | Mild             |
|            | Glandular   | Hemorrhage            | Minimal          |
|            | Forestomach | Hyperkeratosis        | Mild             |
|            | Glandular   | Metaplasia            | Minimal          |

Note: FOCAL INTESTINAL METAPLASIA

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:26  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

---

**ANIMAL ID:** 132

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 634

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Testes

Bilateral, Interstit Cell  
Seminif Tub

Adenoma  
Atrophy

Mild

Note: ADENOMA TGLs = 3-6,4-6

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:26

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 133

TRT#: 2

SEX: Male

DAY ON TEST: 718

DOSE: 0.025 G/KG 79 LM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Medulla  | Bone                    | Bone Marrow               | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Nose                     | Pancreas                | Parathyroid Gland         | Pituitary Gland         |
| Preputial Gland          | Prostate                | Salivary Glands           | Seminal Vesicle         |
| Skin                     | Stomach - Forestomach   | Stomach - Glandular       | Thymus                  |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

MISSING

Mammary Gland

OBSERVATIONS

|   |                           |                                  |                     |
|---|---------------------------|----------------------------------|---------------------|
| Adrenal Gland<br>Note: ADENOMA TGLs = 4-8     | Cortex                    | Adenoma                          |                     |
| Heart   |                           | Cardiomyopathy                   | Mild                |
| Intestine Small                               | Duodenum                  | Pigmentation                     | Minimal             |
| Kidney  | Papilla                   | Mineralization                   | Minimal             |
|   |                           | Nephropathy                      | Mild                |
| Liver<br>Note: NECROSIS TGLs = 5-3            |                           | Necrosis                         | Mild                |
| Lung<br><br>Note: INFILTRAT CELL TGLs = 1-1+2 |                           | Infiltration Cellular            | Histiocyte, Mild    |
|   |                           | Inflammation                     | Acute, Mild         |
|   |                           | Pigmentation                     | Mild                |
| Lymph Node                                    | Mesenteric                | Infiltration Cellular            | Histiocyte, Minimal |
|   | Mandibular                | Pigmentation                     | Minimal             |
|   | Mesenteric                | Pigmentation                     | Mild                |
| Spleen  |                           | Hematopoietic Cell Proliferation | Moderate            |
| Testes<br>Note: ADENOMA TGLs = 2-6,3-6        | Bilateral, Interstit Cell | Adenoma                          |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 134      **TRT#:** 2      **SEX:** Male      **DAY ON TEST:** 400  
**DOSE:** 0.025 G/KG 79 LM      **DISP:** Dead      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       | Pancreas                |
| Parathyroid Gland         | Preputial Gland          | Prostate                   | Salivary Glands         |
| Seminal Vesicle           | Skin                     | Stomach - Forestomach      | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                   |                |                |                   |
|-------------------|----------------|----------------|-------------------|
| Heart             |                | Cardiomyopathy | Mild              |
| Kidney            |                | Nephropathy    | Minimal           |
| Note: NEPHROPATHY | TGLs = 3-4     |                |                   |
| Liver             | Bile Duct      | Hyperplasia    | Minimal           |
| Note: HYPERPLASIA | TGLs = 4-3     |                |                   |
| Lung              |                | Congestion     | Moderate          |
| Note: CONGESTION  | TGLs = 2-1+2   |                |                   |
| Lymph Node        | Mandibular     | Pigmentation   | Mild              |
|                   | Mesenteric     | Pigmentation   | Mild              |
| Note: PIGMENT     | TGLs = 1-9     |                |                   |
| Pituitary Gland   | Pars Distalis  | Adenoma        |                   |
| Spleen            |                | Pigmentation   | Hemosiderin, Mild |
| Stomach           | Glandular      | Pigmentation   | Minimal           |
| Testes            | Interstit Cell | Hyperplasia    | Mild              |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 135

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Nose                       | Parathyroid Gland       | Preputial Gland           |
| Prostate                 | Salivary Glands            | Seminal Vesicle         | Skin                      |
| Stomach - Forestomach    | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**MISSING**

|               |        |
|---------------|--------|
| Mammary Gland | Thymus |
|---------------|--------|

**OBSERVATIONS**

|                                 |               |                                  |                     |
|---------------------------------|---------------|----------------------------------|---------------------|
| Adrenal Gland                   | Medulla       | Hyperplasia                      | Mild                |
|                                 | Medulla       | Pheochromocytoma Benign          |                     |
| Note: PHEOCHROM BGN TGLs = 7-8  |               |                                  |                     |
| Heart                           |               | Cardiomyopathy                   | Mild                |
| Kidney                          |               | Nephropathy                      | Moderate            |
| Note: NEPHROPATHY TGLs = 3-4    |               |                                  |                     |
| Liver                           |               | Basophilic Focus                 |                     |
|                                 |               | Clear Cell Focus                 |                     |
|                                 |               | Pigmentation                     | Minimal             |
| Note: CLEAR CL FOCUS TGLs = 4-3 |               |                                  |                     |
| Lung                            |               | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node                      | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                                 | Mandibular    | Pigmentation                     | Minimal             |
|                                 | Mediastinal   | Pigmentation                     | Minimal             |
|                                 | Mesenteric    | Pigmentation                     | Mild                |
| Pancreas                        | Acinus        | Hyperplasia                      | Mild                |
| Pituitary Gland                 | Pars Distalis | Adenoma                          |                     |
|                                 | Pars Distalis | Angiectasis                      | Moderate            |
| Note: ADENOMA TGLs = 6-8        |               |                                  |                     |
| Spleen                          |               | Hematopoietic Cell Proliferation | Mild                |
|                                 |               | Infiltration Cellular            | Histiocyte, Minimal |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 135

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|         |                           |              |                   |
|---------|---------------------------|--------------|-------------------|
|         |                           | Pigmentation | Mild              |
|         |                           | Pigmentation | Hemosiderin, Mild |
| Stomach | Glandular                 | Fibrosis     | Minimal           |
|         | Glandular                 | Metaplasia   | Minimal           |
| Testes  | Bilateral, Interstit Cell | Adenoma      |                   |
|         | Seminif Tub               | Atrophy      | Mild              |

Note: ADENOMA TGLs = 1-6,2-6

PRIMARY CAUSE OF DEATH

-

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 136

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Pancreas                  |
| Parathyroid Gland        | Preputial Gland            | Prostate                | Salivary Glands           |
| Seminal Vesicle          | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**OBSERVATIONS**

|                                       |              |                            |                  |
|---------------------------------------|--------------|----------------------------|------------------|
| Adrenal Gland                         | Medulla      | Hyperplasia                | Mild             |
| Eye                                   | Retina       | Atrophy                    | Mild             |
| Note: ATROPHY      TGLs = 1-13        |              |                            |                  |
| Heart                                 |              | Cardiomyopathy             | Mild             |
| Note: THROMBUS      TGLs = 7-2        |              | Thrombosis                 | Moderate         |
| Kidney                                | Renal Tubule | Nephropathy                | Mild             |
|                                       |              | Pigmentation               | Minimal          |
| Liver                                 |              | Basophilic Focus           |                  |
|                                       |              | Degeneration               | Cystic, Mild     |
|                                       |              | Fatty Change               | Diffuse, Mild    |
|                                       |              | Hepatodiaphragmatic Nodule |                  |
|                                       | Bile Duct    | Hyperplasia                | Mild             |
|                                       |              | Pigmentation               | Mild             |
| Note: ANOM HEPAT LOB      TGLs = 11-3 |              |                            |                  |
| Note: PIGMENT      TGLs = 10-3        |              |                            |                  |
| Lung                                  |              | Infiltration Cellular      | Histiocyte, Mild |
|                                       |              | Inflammation               | Acute, Minimal   |
|                                       |              | Pigmentation               | Minimal          |
| Lymph Node                            | Mandibular   | Pigmentation               | Minimal          |
|                                       | Mediastinal  | Pigmentation               | Mild             |
|                                       | Mesenteric   | Pigmentation               | Mild             |
|                                       | Pancreatic   | Pigmentation               | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 136 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

|   |                  |  |  |
|---|------------------|--|--|
| Note: PIGMENT                                   | TGLs = 4-9,8-2.1 |  |  |
| Pituitary Gland                                 |                  | Rathkes Cleft                            | Cyst   |
| Note: CYST                                      | TGLs = 12-8      |  |  |
| Skin  |                  | Subcut Tiss                              | Fibrosarcoma<br>Metaplasia                                       |
|   |                  |  | Osseous, Moderate  |
| Note: FIBROSARC                                 | TGLs = 3-14      |  |  |
| Spleen  |                  |  | Hematopoietic Cell Proliferation<br>Pigmentation<br>Pigmentation |
|   |                  |  | Moderate<br>Mild<br>Hemosiderin, Minimal                         |
| [ Hematopoietic Cell Proliferation TGLS = 9-3 ] |                  |  |  |
| Stomach   |                  | Forestomach<br>Glandular                 | Acanthosis<br>Metaplasia   |
|   |                  |  | Mild<br>Minimal  |
| Testes  |                  | Bilateral, Interstit Cell<br>Seminif Tub | Adenoma<br>Atrophy   |
|   |                  |  | Mild   |
| Note: ADENOMA                                   | TGLs = 5-6,6-6   |  |  |
| Thymus  |                  |  | Pigmentation   |
|   |                  |  | Minimal  |

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PRIMARY CAUSE OF DEATH

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-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 137

TRT#: 2

SEX: Male

DAY ON TEST: 306

DOSE: 0.025 G/KG 79 LM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Mammary Gland           |
| Nose                      | Pancreas                 | Parathyroid Gland          | Pituitary Gland         |
| Prostate                  | Seminal Vesicle          | Stomach - Forestomach      | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

MISSING

|                         |                         |                 |                 |
|-------------------------|-------------------------|-----------------|-----------------|
| Lymph Node - Mandibular | Lymph Node - Mesenteric | Preputial Gland | Salivary Glands |
|-------------------------|-------------------------|-----------------|-----------------|

OBSERVATIONS

|  |                |                                  |                     |
|--|----------------|----------------------------------|---------------------|
| Heart  |                | Cardiomyopathy                   | Minimal             |
| Liver  |                | Fatty Change                     | Diffuse, Mild       |
| Lung   |                | Infiltration Cellular            | Histiocyte, Minimal |
| Pituitary Gland                                  |                |                                  |                     |
| Note: DEGRANULATED CELLS                         |                |                                  |                     |
| Skin   | Subcut Tiss    | Fibrosarcoma                     |                     |
| Note: THIS PROBABLY REFERS TO TGL #2. PREPUTIAL  |                |                                  |                     |
| Note: HAS FEATURES OF A CARCINOSARCOMA.          |                |                                  |                     |
| Note: GLAND CANNOT BE IDENTIFIED. THIS NEOPLASM  |                |                                  |                     |
| Note: FIBROSARC TGLs = 2-10+10.1                 |                |                                  |                     |
| Spleen   |                | Hematopoietic Cell Proliferation | Mild                |
|  |                | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL TGLs = 7-3                  |                |                                  |                     |
| Stomach  | Glandular      | Fibrosis                         | Mild                |
|  | Glandular      | Hyperplasia                      | Mild                |
|  | Glandular      | Metaplasia                       | Mild                |
| Note: NECK CELLS. AREAS OF INTESTINAL METAPLASIA |                |                                  |                     |
| Note: CLUSTERS OF LYMPHOCYTES. VERY FEW MUCUS    |                |                                  |                     |
| Testes   |                | Atrophy                          | Moderate            |
|  | Interstit Cell | Hyperplasia                      | Minimal             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:27

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 137

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 306

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Thymus

Note: ? ATROPHY, DEPLETION, OR PLANE OF SECTION ?

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 138

TRT#: 2

SEX: Male

DAY ON TEST: 484

DOSE: 0.025 G/KG 79 LM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Bone Marrow              |
| Brain                      | Epididymis              | Esophagus                 | Eye                      |
| Heart                      | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Kidney                     | Liver                   | Lymph Node - Mandibular   | Nose                     |
| Pancreas                   | Parathyroid Gland       | Preputial Gland           | Prostate                 |
| Salivary Glands            | Seminal Vesicle         | Skin                      | Spleen                   |
| Thymus                     | Thyroid Gland           | Trachea                   | Urinary Bladder          |

MISSING

Mammary Gland

OBSERVATIONS

|  |                |                       |                      |
|--|----------------|-----------------------|----------------------|
| Lung   |                | Infiltration Cellular | Histiocyte, Minimal  |
| Lymph Node   | Renal          | Angiectasis           | Mild                 |
|  | Mesenteric     | Infiltration Cellular | Histiocyte, Mild     |
|  | Pancreatic     | Infiltration Cellular | Histiocyte, Moderate |
|  | Renal          | Infiltration Cellular | Histiocyte, Mild     |
| Note: INFILTRAT CELL TGLs = 7-3,6-8,5-9              |                |                       |                      |
| Pituitary Gland                                      | Pars Distalis  | Hyperplasia           | Mild                 |
| Stomach  | Glandular      | Erosion               | Mild                 |
|  | Glandular      | Fibrosis              | Mild                 |
|  | Forestomach    | Hyperkeratosis        | Mild                 |
|  | Glandular      | Hyperplasia           | Minimal              |
|  | Glandular      | Metaplasia            | Mild                 |
| Note: INTESTINAL METAPLASIA AND LYMPHOCYTIC CLUSTERS |                |                       |                      |
| Testes   | Interstit Cell | Adenoma               |                      |
|  | Interstit Cell | Hyperplasia           | Mild                 |
| Note: ADENOMA TGLs = 3-6                             |                |                       |                      |
| Zymbal's Gland                                       |                | Carcinoma             |                      |
| Note: CARCINOMA TGLs = 8-13+13.1                     |                |                       |                      |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 138

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 484

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 139

TRT#: 2

SEX: Male

DAY ON TEST: 553

DOSE: 0.025 G/KG 79 LM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Bone Marrow             | Brain                    |
| Epididymis              | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Parathyroid Gland        |
| Preputial Gland         | Prostate                  | Salivary Glands         | Seminal Vesicle          |
| Stomach - Forestomach   | Thyroid Gland             | Trachea                 | Urinary Bladder          |

MISSING

|           |               |
|-----------|---------------|
| Esophagus | Mammary Gland |
|-----------|---------------|

OBSERVATIONS

|   |               |                       |                     |
|---|---------------|-----------------------|---------------------|
| Adrenal Gland   | Medulla       | Hyperplasia           | Mild                |
| Heart   |               | Cardiomyopathy        | Mild                |
| Intestine Small   | Duodenum      | Pigmentation          | Minimal             |
| Kidney  | Papilla       | Mineralization        | Minimal             |
|   | Renal Tubule  | Pigmentation          | Minimal             |
| Liver   |               | Basophilic Focus      |                     |
|   |               | Fatty Change          | Focal, Minimal      |
|   |               | Pigmentation          | Minimal             |
| Lung  |               | Infiltration Cellular | Histiocyte, Minimal |
|   |               | Inflammation          | Acute, Minimal      |
|   |               | Pigmentation          | Minimal             |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES. TALL EPITHELIUM |               |                       |                     |
| Lymph Node  | Mandibular    | Infiltration Cellular | Histiocyte, Minimal |
|   | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|   | Mesenteric    | Pigmentation          | Mild                |
| Note: INFILTRAT CELL TGLs = 8-8                         |               |                       |                     |
| Nose  |               | Inflammation          | Acute, Moderate     |
| Note: MORE LIKE SEROPURULENT RHINITIS                   |               |                       |                     |
| Pancreas  | Acinus        | Hyperplasia           | Mild                |
| Pituitary Gland   | Pars Distalis | Angiectasis           | Mild                |
| Note: NUMEROUS DEGRANULATED CELLS                       |               |                       |                     |
| Skin  | Subcut Tiss   | Fibroma               |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 139 | <b>TRT#:</b> 2                | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 553 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                    |                           |   |                              |
|------------------------------------|---------------------------|---|------------------------------|
| Note: MUCH OF THE TISSUE AUTOLYZED |                           |   |                              |
| Note: FIBROMA TGLs = 3-13+13.1     |                           |   |                              |
| Spleen                             |                           | Hematopoietic Cell Proliferation<br>Infiltration Cellular | Moderate<br>Histiocyte, Mild |
| Note: HEMA CELL PROL TGLs = 9-3    |                           |   |                              |
| Stomach                            | Glandular                 | Erosion   | Minimal                      |
|                                    | Glandular                 | Fibrosis  | Mild                         |
|                                    | Glandular                 | Hyperplasia   | Mild                         |
|                                    | Glandular                 | Metaplasia  | Minimal                      |
| Testes                             | Bilateral, Interstit Cell | Adenoma   |                              |
|                                    | Seminif Tub               | Atrophy   | Mild                         |
|                                    | Interstit Cell            | Hyperplasia   | Mild                         |
| Note: ADENOMA TGLs = 4-6,5-6       |                           |   |                              |
| Thymus                             |                           | Pigmentation  | Minimal                      |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 140

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Bone                     | Bone Marrow             | Brain                     |
| Epididymis              | Esophagus                | Eye                     | Harderian Gland           |
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Pancreas                | Parathyroid Gland         |
| Preputial Gland         | Prostate                 | Salivary Glands         | Seminal Vesicle           |
| Skin                    | Stomach - Glandular      | Thymus                  | Thyroid Gland             |
| Trachea                 | Urinary Bladder          |                         |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                   |            |                       |                        |
|-----------------------------------|------------|-----------------------|------------------------|
| Adrenal Gland                     | Medulla    | Hyperplasia           | Minimal                |
| Heart                             |            | Cardiomyopathy        | Moderate               |
| Intestine Large                   | Colon      | Parasite              | Mild                   |
| Intestine Small                   | Duodenum   | Pigmentation          | Minimal                |
| Kidney                            |            | Nephropathy           | Mild                   |
| Liver                             |            | Basophilic Focus      |                        |
|                                   |            | Eosinophilic Focus    |                        |
|                                   |            | Fatty Change          | Focal, Minimal         |
|                                   | Bile Duct  | Hyperplasia           | Mild                   |
|                                   |            | Inflammation          | Granulomatous, Minimal |
|                                   |            | Pigmentation          | Minimal                |
| Lung                              |            | Atelectasis           | Minimal                |
|                                   |            | Infiltration Cellular | Histiocyte, Mild       |
|                                   |            | Inflammation          | Granulomatous, Mild    |
|                                   |            | Mineralization        | Minimal                |
|                                   |            | Pigmentation          | Mild                   |
| Note: INFILTRAT CELL TGLs = 3-1+2 |            |                       |                        |
| Lymph Node                        | Mesenteric | Infiltration Cellular | Histiocyte, Mild       |
|                                   | Mandibular | Pigmentation          | Minimal                |
|                                   | Mesenteric | Pigmentation          | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 140 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                        |              |                           |                       |                     |
|------------------------|--------------|---------------------------|-----------------------|---------------------|
| Note: PIGMENT          | TGLs = 7-8   |                           |                       |                     |
| Pituitary Gland        |              | Pars Distalis             | Angiectasis           | Minimal             |
| Note: ANGIECTASIS      | TGLs = 6-8   |                           |                       |                     |
| Spleen                 |              | Capsule                   | Cyst                  |                     |
|                        |              |                           | Depletion Lymphoid    | Mild                |
|                        |              |                           | Infiltration Cellular | Histiocyte, Minimal |
|                        |              |                           | Pigmentation          | Minimal             |
|                        |              |                           | Pigmentation          | Hemosiderin, Mild   |
| Note: CYST             | TGLs = 4-3.1 |                           |                       |                     |
| Stomach                |              | Forestomach               | Acanthosis            | Mild                |
| Testes                 |              | Bilateral, Interstit Cell | Adenoma               |                     |
|                        |              | Seminif Tub               | Atrophy               | Mild                |
|                        |              | Interstit Cell            | Hyperplasia           | Minimal             |
| Note: ADENOMA          | TGLs = 2-6   |                           |                       |                     |
| PRIMARY CAUSE OF DEATH |              | -                         |                       |                     |

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 141

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     |
| Pancreas                | Parathyroid Gland         | Preputial Gland         | Prostate                 |
| Salivary Glands         | Seminal Vesicle           | Skin                    | Trachea                  |
| Urinary Bladder         |                           |                         |                          |

**MISSING**

|                         |               |        |
|-------------------------|---------------|--------|
| Lymph Node - Mandibular | Mammary Gland | Thymus |
|-------------------------|---------------|--------|

**OBSERVATIONS**

|                                   |               |                         |                        |
|-----------------------------------|---------------|-------------------------|------------------------|
| Adrenal Gland                     | Medulla       | Pheochromocytoma Benign |                        |
| Bone Marrow                       |               | Pigmentation            | Mild                   |
| Ear                               | Canal         | Inflammation            | Acute, Mild            |
| Heart                             |               | Cardiomyopathy          | Mild                   |
| Intestine Small                   | Duodenum      | Pigmentation            | Minimal                |
| Kidney                            | Cortex        | Mineralization          | Minimal                |
|                                   |               | Nephropathy             | Mild                   |
| Liver                             |               | Basophilic Focus        |                        |
|                                   | Bile Duct     | Hyperplasia             | Mild                   |
|                                   |               | Inflammation            | Granulomatous, Minimal |
|                                   |               | Pigmentation            | Mild                   |
| Lung                              |               | Infiltration Cellular   | Histiocyte, Moderate   |
|                                   |               | Pigmentation            | Minimal                |
| Note: INFILTRAT CELL TGLs = 2-1+2 |               |                         |                        |
| Lymph Node                        | Mesenteric    | Infiltration Cellular   | Histiocyte, Mild       |
|                                   | Mesenteric    | Pigmentation            | Mild                   |
| Note: PIGMENT TGLs = 3-8          |               |                         |                        |
| Pituitary Gland                   | Pars Distalis | Adenoma                 |                        |
|                                   | Pars Distalis | Angiectasis             | Mild                   |
| Spleen                            |               | Infiltration Cellular   | Histiocyte, Minimal    |
|                                   |               | Pigmentation            | Hemosiderin, Mild      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 141

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                   |                |                         |         |
|-----------------------------------|----------------|-------------------------|---------|
| Stomach                           | Glandular      | Pigmentation            | Mild    |
|                                   | Glandular      | Fibrosis                | Minimal |
|                                   | Forestomach    | Metaplasia              | Mild    |
|                                   |                | Squamous Cell Papilloma |         |
| Note: PAPILLOMA SQUA TGLs = 4-7.1 |                |                         |         |
| Testes                            | Interstit Cell | Adenoma                 |         |
| Note: ADENOMA TGLs = 1-6          |                |                         |         |
| Thyroid Gland                     | C Cell         | Adenoma                 |         |
| PRIMARY CAUSE OF DEATH            | -              |                         |         |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 142

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Brain                     | Epididymis              |
| Esophagus                | Heart                   | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Nose                    | Pancreas                  | Parathyroid Gland       |
| Pituitary Gland          | Preputial Gland         | Prostate                  | Salivary Glands         |
| Seminal Vesicle          | Skin                    | Stomach - Forestomach     | Thyroid Gland           |
| Trachea                  | Urinary Bladder         |                           |                         |

**OBSERVATIONS**

|                              |                    |                         |                        |
|------------------------------|--------------------|-------------------------|------------------------|
| Adrenal Gland                | Bilateral, Medulla | Pheochromocytoma Benign |                        |
| Note: PHEOCHROM BGN          | TGLs = 4-8         |                         |                        |
| Bone Marrow                  |                    | Pigmentation            | Minimal                |
| Intestine Small              | Duodenum           | Pigmentation            | Minimal                |
| Kidney                       | Renal Tubule       | Nephropathy             | Mild                   |
|                              |                    | Pigmentation            | Minimal                |
| Liver                        |                    | Basophilic Focus        |                        |
|                              |                    | Clear Cell Focus        |                        |
|                              |                    | Degeneration            | Cystic, Minimal        |
|                              |                    | Pigmentation            | Mild                   |
| Lung                         |                    | Atelectasis             | Mild                   |
|                              |                    | Infiltration Cellular   | Histiocyte, Mild       |
|                              |                    | Inflammation            | Granulomatous, Minimal |
|                              |                    | Pigmentation            | Cholesterol, Minimal   |
| [ Atelectasis TGLS = 5-1+2 ] |                    |                         |                        |
| Lymph Node                   | Mesenteric         | Infiltration Cellular   | Histiocyte, Mild       |
|                              | Pancreatic         | Infiltration Cellular   | Histiocyte, Mild       |
|                              | Mandibular         | Pigmentation            | Minimal                |
|                              | Mesenteric         | Pigmentation            | Mild                   |
|                              | Pancreatic         | Pigmentation            | Mild                   |
| Note: PIGMENT                | TGLs = 3-9         |                         |                        |
| Mesentery                    | Fat                | Necrosis                | Moderate               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 142 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                    |                           |                                  |                      |
|------------------------------------|---------------------------|----------------------------------|----------------------|
| Note: NECROSIS                     | TGLs = 1-13               |                                  |                      |
| Spleen                             |                           | Hematopoietic Cell Proliferation | Mild                 |
|                                    |                           | Infiltration Cellular            | Histiocyte, Minimal  |
|                                    |                           | Pigmentation                     | Hemosiderin, Minimal |
|                                    |                           | Pigmentation                     | Mild                 |
| Stomach                            | Glandular                 | Mineralization                   | Mild                 |
| Note: MINERALIZATION IN MUSCULARIS |                           |                                  |                      |
| Testes                             | Bilateral, Interstit Cell | Adenoma                          |                      |
| Note: ADENOMA                      | TGLs = 2-6                |                                  |                      |
| Thymus                             |                           | Pigmentation                     | Minimal              |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 143      **TRT#:** 2      **SEX:** Male      **DAY ON TEST:** 739  
**DOSE:** 0.025 G/KG 79 LM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Pancreas                | Parathyroid Gland         |
| Preputial Gland          | Prostate                   | Salivary Glands         | Seminal Vesicle           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    | Urinary Bladder         |                           |

**OBSERVATIONS**

|                                   |                           |                                  |                      |
|-----------------------------------|---------------------------|----------------------------------|----------------------|
| Adrenal Gland                     | Medulla                   | Hyperplasia                      | Moderate             |
|                                   | Bilateral, Medulla        | Pheochromocytoma Benign          |                      |
| Note: PHEOCHROM BGN    TGLs = 3-8 |                           |                                  |                      |
| Heart                             |                           | Cardiomyopathy                   | Mild                 |
| Kidney                            |                           | Nephropathy                      | Minimal              |
|                                   |                           | Pigmentation                     | Minimal              |
| Liver                             |                           | Basophilic Focus                 |                      |
|                                   |                           | Clear Cell Focus                 |                      |
|                                   | Bile Duct                 | Hyperplasia                      | Mild                 |
|                                   |                           | Inflammation                     | Granulomatous, Mild  |
|                                   |                           | Pigmentation                     | Mild                 |
| Note: HYPERPLASIA    TGLs = 4-3   |                           |                                  |                      |
| Lung                              |                           | Infiltration Cellular            | Histiocyte, Mild     |
| Lymph Node                        | Mandibular                | Pigmentation                     | Mild                 |
|                                   | Mesenteric                | Pigmentation                     | Mild                 |
| Nose                              |                           | Inflammation                     | Acute, Mild          |
| Pituitary Gland                   | Pars Distalis             | Adenoma                          |                      |
| Spleen                            |                           | Hematopoietic Cell Proliferation | Mild                 |
|                                   |                           | Infiltration Cellular            | Histiocyte, Minimal  |
|                                   |                           | Pigmentation                     | Mild                 |
|                                   |                           | Pigmentation                     | Hemosiderin, Minimal |
| Testes                            | Bilateral, Interstit Cell | Adenoma                          |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 143

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

Seminif Tub  
Interstit Cell

Atrophy  
Hyperplasia

Mild  
Mild

Note: ADENOMA      TGLs = 1-6,2-6

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 144

TRT#: 2

SEX: Male

DAY ON TEST: 582

DOSE: 0.025 G/KG 79 LM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Ear                       | Epididymis               | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Pancreas                  | Parathyroid Gland        | Preputial Gland            |
| Prostate                | Salivary Glands           | Seminal Vesicle          | Skin                       |
| Stomach - Forestomach   | Thymus                    | Trachea                  | Urinary Bladder            |

OBSERVATIONS

|                             |                   |                                  |                  |
|-----------------------------|-------------------|----------------------------------|------------------|
| Heart                       |                   | Cardiomyopathy                   | Mild             |
| Kidney                      | Renal Tubule      | Pigmentation                     | Minimal          |
| Liver                       |                   | Fatty Change                     | Diffuse, Marked  |
| [ Fatty Change TGLS = 7-3 ] |                   |                                  |                  |
| Lung                        |                   | Hemorrhage                       | Mild             |
| Note: HEMORRHAGE            | TGLs = 2-1+2      |                                  |                  |
| Lymph Node                  | Mandibular        | Infiltration Cellular            | Histiocyte, Mild |
|                             | Mesenteric        | Infiltration Cellular            | Histiocyte, Mild |
| Pituitary Gland             | Pars Distalis     | Adenoma                          |                  |
| Note: ADENOMA               | TGLs = 8-8.1      |                                  |                  |
| Spleen                      |                   | Hematopoietic Cell Proliferation | Mild             |
| Stomach                     | Glandular         | Erosion                          | Minimal          |
|                             | Glandular         | Hyperplasia                      | Mild             |
|                             | Glandular         | Inflammation                     | Acute, Minimal   |
|                             | Glandular         | Metaplasia                       | Minimal          |
| Testes                      | Interstitial Cell | Adenoma                          |                  |
|                             | Seminif Tub       | Atrophy                          | Moderate         |
| Note: ATROPHY               | TGLs = 4-6        |                                  |                  |
| Note: ADENOMA               | TGLs = 5-6        |                                  |                  |
| Thyroid Gland               | C Cell            | Adenoma                          |                  |
|                             | C Cell            | Hyperplasia                      | Minimal          |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 145

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Epididymis  
Intestine Large - Rectum  
Islets, Pancreatic  
Seminal Vesicle  
Trachea

Adrenal Gland - Medulla  
Esophagus  
Intestine Small - Duodenum  
Mammary Gland  
Skin  
Urinary Bladder

Bone  
Intestine Large - Cecum  
Intestine Small - Ileum  
Preputial Gland  
Stomach - Forestomach

Brain  
Intestine Large - Colon  
Intestine Small - Jejunum  
Salivary Glands  
Thyroid Gland

OBSERVATIONS

Bone Marrow  
Heart  
Kidney  
Liver  
Lung

Pigmentation  
Cardiomyopathy  
Nephropathy  
Pigmentation  
Atelectasis  
Infiltration Cellular  
Inflammation  
Pigmentation  
Infiltration Cellular  
Pigmentation  
Pigmentation

Minimal  
Mild  
Minimal  
Minimal  
Minimal  
Histiocyte, Mild  
Granulomatous, Minimal  
Mild  
Histiocyte, Moderate  
Mild  
Moderate

Lymph Node

Mesenteric  
Mandibular  
Mesenteric

Inflammation  
Hyperplasia  
Adenoma

Acute, Mild  
Mild

Note: PIGMENT TGLs = 3-8

Nose  
Pancreas  
Parathyroid Gland

Acinus

Hyperplasia  
Hyperplasia  
Hematopoietic Cell Proliferation  
Infiltration Cellular  
Pigmentation  
Pigmentation  
Fibrosis

Mild  
Mild  
Mild  
Histiocyte, Mild  
Mild  
Hemosiderin, Mild  
Minimal

Note: BECAUSE OF MINIMAL NEPHROPATHY, DIAGNOSIS OF ADENOMA MADE

Pituitary Gland  
Prostate  
Spleen

Pars Distalis  
Epithelium

Stomach

Glandular

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 145

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                             |                           |                    |                   |
|-----------------------------|---------------------------|--------------------|-------------------|
|                             | Glandular                 | Hyperplasia        | Adenomatous, Mild |
|                             | Glandular                 | Inflammation       | Acute, Minimal    |
| Note: HYPERPLASIA<br>Testes | TGLs = 4-7.1              |                    |                   |
|                             | Bilateral, Interstit Cell | Adenoma            |                   |
|                             | Seminif Tub               | Atrophy            | Mild              |
|                             | Interstit Cell            | Hyperplasia        | Mild              |
| Note: ADENOMA<br>Thymus     | TGLs = 1-6,2-6            |                    |                   |
|                             |                           | Depletion Lymphoid | Mild              |
| PRIMARY CAUSE OF DEATH      | -                         |                    |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 146

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     |
| Parathyroid Gland       | Preputial Gland           | Prostate                | Salivary Glands          |
| Seminal Vesicle         | Skin                      | Testes                  | Trachea                  |
| Urinary Bladder         |                           |                         |                          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                 |                               |  |                       |
|---------------------------------|-------------------------------|--|-----------------------|
| Adrenal Gland                   | Medulla<br>Bilateral, Medulla | Hyperplasia<br>Pheochromocytoma Benign | Mild                  |
| Bone Marrow                     |                               | Pigmentation                           | Minimal               |
| Ear                             | Canal                         | Inflammation                           | Acute, Marked         |
| Heart                           |                               | Cardiomyopathy                         | Mild                  |
| Intestine Small                 | Duodenum                      | Pigmentation                           | Minimal               |
| Kidney                          | Renal Tubule                  | Nephropathy                            | Mild                  |
|                                 |                               | Pigmentation                           | Minimal               |
| Liver                           | Bile Duct                     | Basophilic Focus                       |                       |
|                                 |                               | Hyperplasia                            | Mild                  |
|                                 |                               | Inflammation                           | Granulomatous, Mild   |
|                                 |                               | Leukemia Mononuclear                   |                       |
|                                 |                               | Pigmentation                           | Mild                  |
| Note: INFLAMMATION TGLs = 4-3   |                               |  |                       |
| Lung                            |                               | Infiltration Cellular                  | Histiocyte, Minimal   |
| Lymph Node                      | Mandibular                    | Infiltration Cellular                  | Plasma Cell, Moderate |
|                                 | Mesenteric                    | Infiltration Cellular                  | Histiocyte, Mild      |
|                                 | Mediastinal                   | Pigmentation                           | Mild                  |
|                                 | Mesenteric                    | Pigmentation                           | Moderate              |
| Note: INFILTRAT CELL TGLs = 6-9 |                               |  |                       |
| Note: PIGMENT TGLs = 3-8        |                               |  |                       |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 146 | <b>TRT#:</b> 2                | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                      |                  |                                  |                   |
|----------------------|------------------|----------------------------------|-------------------|
| Pancreas             | Acinus           | Hyperplasia                      | Mild              |
| Pituitary Gland      | Pars Distalis    | Hyperplasia                      | Mild              |
| Spleen               |                  | Hematopoietic Cell Proliferation | Mild              |
|                      |                  | Leukemia Mononuclear             |                   |
|                      |                  | Pigmentation                     | Hemosiderin, Mild |
|                      |                  | Pigmentation                     | Mild              |
| Stomach              | Forestomach      | Acanthosis                       | Mild              |
|                      | Glandular        | Fibrosis                         | Mild              |
|                      | Forestomach      | Hyperkeratosis                   | Mild              |
|                      | Glandular        | Metaplasia                       | Mild              |
|                      | Forestomach      | Squamous Cell Papilloma          |                   |
| Note: PAPILLOMA SQUA | TGLs = 5-7.1     |                                  |                   |
| Thymus               |                  | Pigmentation                     | Minimal           |
| Thyroid Gland        | C Cell           | Adenoma                          |                   |
|                      | Follicular Cel   | Adenoma                          |                   |
| Zymbal's Gland       |                  | Carcinoma                        |                   |
| Note: CARCINOMA      | TGLs = 1-13+13.1 |                                  |                   |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 148

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 526

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Epididymis                | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lymph Node - Mandibular |
| Mammary Gland             | Nose                     | Pancreas                   | Parathyroid Gland       |
| Preputial Gland           | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Skin                      | Stomach - Forestomach    | Thymus                     | Thyroid Gland           |
| Trachea                   | Urinary Bladder          |                            |                         |

**MISSING**

Brain

**OBSERVATIONS**

|                                      |                           |                                  |                     |
|--------------------------------------|---------------------------|----------------------------------|---------------------|
| Eye                                  | Lens                      | Cataract                         | Mild                |
| [ Cataract TGLS = 2-13 ]             |                           |                                  |                     |
| Kidney                               |                           |                                  |                     |
| Note: BL                             |                           |                                  |                     |
| Note: BLOOD IN RENAL PELVIS          |                           |                                  |                     |
| Liver                                |                           | Fatty Change                     | Focal, Minimal      |
| Lung                                 |                           | Edema                            | Minimal             |
|                                      |                           | Infiltration Cellular            | Histiocyte, Minimal |
|                                      |                           | Pigmentation                     | Minimal             |
| [ Edema TGLS = 1-1+2 ]               |                           |                                  |                     |
| Lymph Node                           | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild    |
| Pituitary Gland                      | Pars Distalis             | Adenoma                          |                     |
|                                      | Pars Distalis             | Angiectasis                      | Moderate            |
| Note: ADENOMA TGLs = 4-8             |                           |                                  |                     |
| Spleen                               |                           | Hematopoietic Cell Proliferation | Mild                |
| Stomach                              | Glandular                 | Fibrosis                         | Mild                |
|                                      | Glandular                 | Metaplasia                       | Mild                |
| Note: AREAS OF INTESTINAL METAPLASIA |                           |                                  |                     |
| Testes                               | Bilateral, Interstit Cell | Adenoma                          |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 148

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 526

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Interstit Cell

Hyperplasia

Mild

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 149

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Pancreas                  |
| Parathyroid Gland        | Pituitary Gland            | Preputial Gland         | Salivary Glands           |
| Seminal Vesicle          | Skin                       | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            |                         |                           |

**OBSERVATIONS**

|                                 |                    |                                  |                     |
|---------------------------------|--------------------|----------------------------------|---------------------|
| Adrenal Gland                   | Medulla            | Hyperplasia                      | Mild                |
|                                 | Bilateral, Medulla | Pheochromocytoma Benign          |                     |
| Heart                           |                    | Cardiomyopathy                   | Mild                |
| Kidney                          | Cortex             | Mineralization                   | Minimal             |
|                                 |                    | Nephropathy                      | Mild                |
| Liver                           |                    | Basophilic Focus                 |                     |
|                                 |                    | Clear Cell Focus                 |                     |
|                                 | Bile Duct          | Hyperplasia                      | Mild                |
|                                 |                    | Inflammation                     | Granulomatous, Mild |
|                                 |                    | Pigmentation                     | Minimal             |
| Note: CLEAR CL FOCUS TGLs = 3-3 |                    |                                  |                     |
| Lung                            | Alveolar Epith     | Hyperplasia                      | Mild                |
|                                 |                    | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node                      | Mesenteric         | Infiltration Cellular            | Histiocyte, Mild    |
|                                 | Mandibular         | Pigmentation                     | Minimal             |
|                                 | Mediastinal        | Pigmentation                     | Mild                |
|                                 | Mesenteric         | Pigmentation                     | Moderate            |
| Prostate                        | Epithelium         | Hyperplasia                      | Mild                |
| Spleen                          |                    | Hematopoietic Cell Proliferation | Mild                |
|                                 |                    | Pigmentation                     | Mild                |
|                                 |                    | Pigmentation                     | Hemosiderin, Mild   |
| Stomach                         | Forestomach        | Acanthosis                       | Minimal             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 149

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Glandular

Fibrosis

Mild

Glandular

Metaplasia

Minimal

Testes

Bilateral, Interstit Cell

Adenoma

Seminif Tub

Atrophy

Mild

Note: ADENOMA TGLs = 1-6

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 150

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 567

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Epididymis  
Parathyroid Gland  
Skin

Adrenal Gland - Medulla  
Esophagus  
Preputial Gland  
Stomach - Forestomach

Bone  
Intestine Large - Cecum  
Prostate  
Stomach - Glandular

Brain  
Lymph Node - Mandibular  
Seminal Vesicle

**MISSING**

Pancreas

**AUTO PRECLUDES DIAG.**

Bone Marrow  
Intestine Small - Ileum  
Pituitary Gland  
Urinary Bladder

Intestine Large - Colon  
Intestine Small - Jejunum  
Spleen

Intestine Large - Rectum  
Islets, Pancreatic  
Thyroid Gland

Intestine Small - Duodenum  
Lymph Node - Mesenteric  
Trachea

**OBSERVATIONS**

Heart  
Islets Panc  
Note: THICK FIBROUS CAPSULE

Kidney  
Liver  
Lung

Nose  
Note: INFLAMMATION TGLs = 2-12

Salivary Glands  
Testes

Note: ADENOMA TGLs = 5-6

Papilla

Bilateral, Interstit Cell  
Interstit Cell

Cardiomyopathy

Mineralization  
Fatty Change  
Edema  
Inflammation  
Inflammation

Necrosis  
Adenoma  
Hyperplasia

Mild

Minimal  
Diffuse, Mild  
Moderate  
Acute, Moderate  
Acute, Moderate

Moderate

Mild

**PRIMARY CAUSE OF DEATH**

-

Animal Note: IN THE ABDOMINAL CAVITY

Animal Note: COPIOUS EXUDATE AROUND THE SALIVARY GLANDS AND

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 151

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 732

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone Marrow               | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Nose                    | Parathyroid Gland         | Pituitary Gland         |
| Preputial Gland          | Prostate                | Salivary Glands           | Seminal Vesicle         |
| Skin                     | Trachea                 | Urinary Bladder           |                         |

**OBSERVATIONS**

|  |             |                       |                     |
|--|-------------|-----------------------|---------------------|
| Bone   |             | Osteoma               |                     |
| Note: OSTEOMA                                    | TGLs = 9-13 |                       |                     |
| Heart  |             | Cardiomyopathy        | Mild                |
| Intestine Small                                  | Duodenum    | Pigmentation          | Minimal             |
| Kidney   | Papilla     | Mineralization        | Minimal             |
|  |             | Nephropathy           | Minimal             |
| Liver  |             | Basophilic Focus      |                     |
|  |             | Fatty Change          | Focal, Minimal      |
|  |             | Inflammation          | Granulomatous, Mild |
|  |             | Pigmentation          | Mild                |
| Lung   |             | Atelectasis           | Mild                |
|  |             | Infiltration Cellular | Histiocyte, Mild    |
|  |             | Pigmentation          | Minimal             |
| Note: MUCINOUS MATERIAL IN LUMINA OF BRONCHIOLES |             |                       |                     |
| [ Infiltration Cellular TGLS = 3-1+2 ]           |             |                       |                     |
| Lymph Node                                       | Mandibular  | Degeneration          | Cystic, Mild        |
|  | Mandibular  | Pigmentation          | Minimal             |
|  | Mesenteric  | Pigmentation          | Minimal             |
| Note: DEGEN                                      | TGLs = 2-9  |                       |                     |
| Pancreas   | Acinus      | Hyperplasia           | Mild                |
| Spleen   |             | Infiltration Cellular | Histiocyte, Mild    |
|  |             | Pigmentation          | Mild                |
|  |             | Pigmentation          | Hemosiderin, Mild   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 151 | <b>TRT#:</b> 2                | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 732 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |                |              |             |
|---------------|----------------|--------------|-------------|
| Stomach       | Forestomach    | Acanthosis   | Mild        |
|               | Glandular      | Fibrosis     | Mild        |
|               | Glandular      | Hyperplasia  | Mild        |
|               | Glandular      | Inflammation | Acute, Mild |
|               | Glandular      | Metaplasia   | Mild        |
| Testes        | Interstit Cell | Adenoma      |             |
|               | Seminif Tub    | Atrophy      | Mild        |
| Note: ATROPHY | TGLs = 6-6     |              |             |
| Note: ADENOMA | TGLs = 5-6     |              |             |
| Thymus        |                | Pigmentation | Mild        |
| Thyroid Gland | C Cell         | Hyperplasia  | Minimal     |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 152

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 537

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Parathyroid Gland         | Prostate                 | Salivary Glands            |
| Seminal Vesicle         | Skin                      | Stomach - Forestomach    | Thyroid Gland              |
| Trachea                 | Urinary Bladder           |                          |                            |

**OBSERVATIONS**

|                   |                |                       |                     |
|-------------------|----------------|-----------------------|---------------------|
| Kidney            | Renal Tubule   | Pigmentation          | Minimal             |
| Liver             |                | Fatty Change          | Focal, Minimal      |
| Lung              |                | Infiltration Cellular | Histiocyte, Minimal |
|                   |                | Inflammation          | Acute, Minimal      |
|                   |                | Pigmentation          | Mild                |
| Note: PIGMENT     | TGLs = 2-1+2   |                       |                     |
| Lymph Node        | Mandibular     | Infiltration Cellular | Histiocyte, Minimal |
|                   | Mesenteric     | Infiltration Cellular | Mast Cell, Mild     |
|                   | Mesenteric     | Infiltration Cellular | Histiocyte, Mild    |
|                   | Mesenteric     | Pigmentation          | Mild                |
| Pancreas          | Acinus         | Hyperplasia           | Mild                |
| Pituitary Gland   | Pars Distalis  | Hyperplasia           | Mild                |
| Preputial Gland   |                | Adenoma               |                     |
| Note: ADENOMA     | TGLs = 1-10.1  |                       |                     |
| Spleen            |                | Infiltration Cellular | Histiocyte, Minimal |
| Stomach           | Glandular      | Fibrosis              | Mild                |
|                   | Glandular      | Hyperplasia           | Mild                |
|                   | Glandular      | Inflammation          | Acute, Minimal      |
|                   | Glandular      | Metaplasia            | Minimal             |
| Note: HYPERPLASIA | TGLs = 4-7     |                       |                     |
| Testes            | Interstit Cell | Adenoma               |                     |
|                   | Interstit Cell | Hyperplasia           | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 152

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 537

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Thymus

Pigmentation

Minimal

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 153

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 0.025 G/KG 79 LM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Brain                   | Epididymis                |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Lymph Node - Mandibular  | Mammary Gland              | Nose                    | Parathyroid Gland         |
| Preputial Gland          | Prostate                   | Salivary Glands         | Seminal Vesicle           |
| Skin                     | Thyroid Gland              | Trachea                 |                           |

OBSERVATIONS

|   |                    |                              |                          |
|---|--------------------|------------------------------|--------------------------|
| Adrenal Gland   | Bilateral, Medulla | Pheochromocytoma Benign      |                          |
| Note: PHEOCHROM BGN                                   | TGLs = 2-8+8.1     |                              |                          |
| Bone Marrow   |                    | Pigmentation                 | Minimal                  |
| Islets, Pancreatic                                    |                    | Adenoma                      |                          |
| Kidney  |                    | Nephropathy                  | Mild                     |
| Liver   |                    | Basophilic Focus             |                          |
|   | Bile Duct          | Hyperplasia                  | Minimal                  |
|   |                    | Pigmentation                 | Minimal                  |
| Lung  |                    | Alveolar/Bronchiolar Adenoma |                          |
|   |                    | Infiltration Cellular        | Histiocyte, Mild         |
|   |                    | Pigmentation                 | Minimal                  |
| Note: IN A FEW BRONCHIOLES                            |                    |                              |                          |
| Note: MUCINOUS MATERIAL, NEUTROPHILS, AND HISTIOCYTES |                    |                              |                          |
| Note: INFILTRAT CELL                                  | TGLs = 7-1+2       |                              |                          |
| Note: ALV BRON ADEN                                   | TGLs = 8-2         |                              |                          |
| Lymph Node  | Mesenteric         | Infiltration Cellular        | Histiocyte, Mild         |
|   | Pancreatic         | Infiltration Cellular        | Histiocyte, Mild         |
|   | Mesenteric         | Pigmentation                 | Mild                     |
|   | Pancreatic         | Pigmentation                 | Mild                     |
| Mesentery   |                    | Fibrosis                     | Moderate                 |
|   | Fat                | Inflammation                 | Chronic Active, Moderate |
| Note: FIBROSIS  | TGLs = 1-13        |                              |                          |
| Pancreas  | Acinus             | Hyperplasia                  | Mild                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 153

**TRT#:** 2  
**DOSE:** 0.025 G/KG 79 LM

**SEX:** Male  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 743  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |  |   |  |
|---|--|---|--|
| Pituitary Gland<br>Note: ADENOMA TGLs = 5-8 | Pars Distalis  | Adenoma   |  |
| Spleen                                      |  | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation<br>Pigmentation   | Mild<br>Histiocyte, Minimal<br>Mild<br>Hemosiderin, Mild |
| Stomach                                     | Forestomach<br>Forestomach<br>Glandular<br>Forestomach<br>Glandular<br>Forestomach | Acanthosis<br>Fibrosis<br>Fibrosis<br>Inflammation<br>Metaplasia<br>Squamous Cell Papilloma | Mild<br>Marked<br>Mild<br>Chronic, Marked<br>Minimal     |
| Note: [ INFLAMMATION ] TGLs = 6-7.1         |  |   |  |
| Testes                                      | Interstit Cell<br>Seminif Tub<br>Interstit Cell                                    | Adenoma<br>Atrophy<br>Hyperplasia<br>Pigmentation   | Moderate<br>Mild<br>Minimal                              |
| Thymus                                      |  |   |  |
| Urinary Bladder                             |  | Calculus Micro Observation Only   |  |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 154

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                    | Brain                    | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     | Pancreas                |
| Parathyroid Gland         | Pituitary Gland         | Preputial Gland          | Prostate                |
| Salivary Glands           | Seminal Vesicle         | Skin                     | Thyroid Gland           |
| Trachea                   | Urinary Bladder         |                          |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                     |                |                            |                     |
|-------------------------------------|----------------|----------------------------|---------------------|
| Adrenal Gland                       | Medulla        | Hyperplasia                | Mild                |
|                                     | Medulla        | Pheochromocytoma Benign    |                     |
| Note: PHEOCHROM BGN TGLs = 5-8      |                |                            |                     |
| Bone Marrow                         |                | Pigmentation               | Minimal             |
| Epididymis                          |                | Mesothelioma Malignant     |                     |
| Note: MESOTHELIO MAL TGLs = 3-6+6.1 |                |                            |                     |
| Heart                               |                | Cardiomyopathy             | Mild                |
| Intestine Small                     | Duodenum       | Pigmentation               | Minimal             |
| Kidney                              |                | Nephropathy                | Minimal             |
|                                     | Renal Tubule   | Pigmentation               | Minimal             |
| Liver                               |                | Basophilic Focus           |                     |
|                                     |                | Eosinophilic Focus         |                     |
|                                     |                | Hepatodiaphragmatic Nodule |                     |
|                                     |                | Inflammation               | Granulomatous, Mild |
|                                     |                | Pigmentation               | Mild                |
| Note: INFLAMMATION TGLs = 6-3+3.1   |                |                            |                     |
| Note: ANOM HEPAT LOB TGLs = 7-3.1   |                |                            |                     |
| Lung                                | Alveolar Epith | Hyperplasia                | Mild                |
|                                     |                | Infiltration Cellular      | Histiocyte, Mild    |
| Lymph Node                          | Mandibular     | Pigmentation               | Minimal             |
|                                     | Mesenteric     | Pigmentation               | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 154

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|               |                           |                                  |                   |
|---------------|---------------------------|----------------------------------|-------------------|
| Spleen        |                           | Hematopoietic Cell Proliferation | Mild              |
|               |                           | Pigmentation                     | Hemosiderin, Mild |
|               |                           | Pigmentation                     | Mild              |
| Stomach       | Forestomach               | Acanthosis                       | Mild              |
|               | Glandular                 | Pigmentation                     | Minimal           |
| Testes        | Bilateral, Interstit Cell | Adenoma                          |                   |
|               | Seminif Tub               | Atrophy                          | Mild              |
|               |                           | Mesothelioma Malignant           |                   |
| Note: ADENOMA | TGLs = 2-6+6.1            |                                  |                   |
| Thymus        |                           | Pigmentation                     | Minimal           |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 155

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 635

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Epididymis               | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Pancreas                 | Parathyroid Gland       | Pituitary Gland           |
| Preputial Gland         | Prostate                 | Salivary Glands         | Seminal Vesicle           |
| Thyroid Gland           | Urinary Bladder          |                         |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                |              |                                  |                   |
|--------------------------------|--------------|----------------------------------|-------------------|
| Heart                          |              | Cardiomyopathy                   | Mild              |
| Intestine Small                | Duodenum     | Pigmentation                     | Minimal           |
| Kidney                         |              | Nephropathy                      | Minimal           |
|                                | Renal Tubule | Pigmentation                     | Minimal           |
| Liver                          |              | Basophilic Focus                 |                   |
|                                |              | Fatty Change                     | Diffuse, Minimal  |
|                                |              | Infarct                          | Moderate          |
|                                |              | Pigmentation                     | Minimal           |
| Note: INFARCT                  | TGLs = 7-3   |                                  |                   |
| Lung                           |              | Inflammation                     | Acute, Mild       |
| Lymph Node                     | Mandibular   | Pigmentation                     | Minimal           |
|                                | Mesenteric   | Pigmentation                     | Mild              |
| Nose                           |              | Inflammation                     | Acute, Mild       |
| Skin                           | Sebaceous GI | Adenoma                          |                   |
|                                |              | Hyperkeratosis                   | Mild              |
| [ Hyperkeratosis TGLS = 1-13 ] |              |                                  |                   |
| Spleen                         |              | Hematopoietic Cell Proliferation | Moderate          |
|                                |              | Infiltration Cellular            | Histiocyte, Mild  |
|                                |              | Pigmentation                     | Hemosiderin, Mild |
|                                |              | Pigmentation                     | Mild              |
| Stomach                        | Forestomach  | Acanthosis                       | Minimal           |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 155 | <b>TRT#:</b> 2                | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 635 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                |                           |              |                 |
|--------------------------------|---------------------------|--------------|-----------------|
|                                | Glandular                 | Fibrosis     | Mild            |
|                                | Glandular                 | Lipoma       |                 |
|                                | Glandular                 | Metaplasia   | Minimal         |
| Note: LIPOMA      TGLs = 8-7.1 |                           |              |                 |
| Testes                         | Bilateral, Interstit Cell | Adenoma      |                 |
| Note: ADENOMA      TGLs = 3-6  |                           |              |                 |
| Thymus                         |                           | Pigmentation | Minimal         |
| Trachea                        |                           | Erosion      | Mild            |
|                                |                           | Inflammation | Acute, Moderate |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 156

TRT#: 2

SEX: Male

DAY ON TEST: 474

DOSE: 0.025 G/KG 79 LM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Pancreas                  | Parathyroid Gland        | Preputial Gland            |
| Prostate                | Salivary Glands           | Seminal Vesicle          | Skin                       |
| Thymus                  | Thyroid Gland             | Trachea                  | Urinary Bladder            |

OBSERVATIONS

|   |                |                       |                  |
|---|----------------|-----------------------|------------------|
| Eye   | Lens           | Cataract              | Mild             |
| Note: CATARACT                                  | TGLs = 1-13    |                       |                  |
| Harderian Gland                                 |                | Pigmentation          | Minimal          |
| Note: PIGMENT DIFFERENT FROM PORPHYRIN          |                |                       |                  |
| Kidney  | Papilla        | Mineralization        | Minimal          |
| Liver   |                | Fatty Change          | Focal, Minimal   |
|   |                | Leukemia Mononuclear  |                  |
| Lung  |                | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC                            | TGLs = 5-1+2   |                       |                  |
| Lymph Node                                      | Mesenteric     | Infiltration Cellular | Histiocyte, Mild |
|   | Mandibular     | Leukemia Mononuclear  |                  |
|   | Mesenteric     | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC                            | TGLs = 6-8     |                       |                  |
| Pituitary Gland                                 | Pars Distalis  | Cyst                  |                  |
| Spleen  |                | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC                            | TGLs = 3-3,4-3 |                       |                  |
| Stomach   | Forestomach    | Acanthosis            | Mild             |
|   | Glandular      | Erosion               | Moderate         |
|   | Glandular      | Fibrosis              | Minimal          |
|   | Forestomach    | Hyperkeratosis        | Mild             |
|   | Glandular      | Inflammation          | Acute, Moderate  |
| Note: FORESTOMACH LESION IS MORE LIKE A SESSILE |                |                       |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 156

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 474

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: SUPERFICIAL GLANDULAR EPITHELIUM.

Note: ACANTHOSIS TGLs = 7-6

Note: [ EROSION ] TGLs = 8-6

Note: PAPILLOMA. NECROSIS OR INFARCTION OF THE

Testes

Interstit Cell

Adenoma

Interstit Cell

Hyperplasia

Mild

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 157

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 650

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                 |                    |                   |
|-------------------------|-----------------|--------------------|-------------------|
| Adrenal Gland - Cortex  | Bone            | Bone Marrow        | Brain             |
| Epididymis              | Esophagus       | Islets, Pancreatic | Kidney            |
| Lymph Node - Mandibular | Mammary Gland   | Pancreas           | Parathyroid Gland |
| Pituitary Gland         | Preputial Gland | Prostate           | Salivary Glands   |
| Seminal Vesicle         | Skin            | Thyroid Gland      | Trachea           |

**MISSING**

Thymus

**AUTO PRECLUDES DIAG.**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Urinary Bladder          |                            |

**OBSERVATIONS**

|  |                |                    |                 |
|--|----------------|--------------------|-----------------|
| Adrenal Gland  | Medulla        | Hyperplasia        | Mild            |
| Heart  |                | Cardiomyopathy     | Mild            |
| Liver  |                | Pigmentation       | Minimal         |
| Lung   |                | Edema              | Moderate        |
|  |                | Inflammation       | Acute, Moderate |
|  |                | Pigmentation       | Minimal         |
| Note: MORE LIKE PNEUMONIA<br>[ Edema TGLS = 6-1+2 ]<br>[ Inflammation TGLS = 5-1+2 ] |                |                    |                 |
| Lymph Node   | Mediastinal    | Pigmentation       | Mild            |
|  | Mesenteric     | Pigmentation       | Moderate        |
| Nose   |                | Inflammation       | Acute, Mild     |
| Spleen   |                | Depletion Lymphoid | Mild            |
| Note: DEPLET LYMPH TGLs = 3-3  |                |                    |                 |
| Stomach  | Forestomach    | Acanthosis         | Minimal         |
|  | Glandular      | Fibrosis           | Minimal         |
|  | Forestomach    | Hyperkeratosis     | Mild            |
| Note: HYPERKERATOSIS TGLs = 7-7.1  |                |                    |                 |
| Testes   | Interstit Cell | Adenoma            |                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 157

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 650

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Seminif Tub

Atrophy

Marked

Note: ADENOMA TGLs = 1-6

Note: ATROPHY TGLs = 2-6

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 158      **TRT#:** 2      **SEX:** Male      **DAY ON TEST:** 611  
**DOSE:** 0.025 G/KG 79 LM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Parathyroid Gland         |
| Preputial Gland          | Prostate                   | Salivary Glands         | Seminal Vesicle           |
| Skin                     | Trachea                    | Urinary Bladder         |                           |

**OBSERVATIONS**

|  |               |                                  |                      |
|--|---------------|----------------------------------|----------------------|
| Adrenal Gland                          | Medulla       | Hyperplasia                      | Moderate             |
| Heart                                  |               | Cardiomyopathy                   | Mild                 |
| Note: A FEW NEUTROPHILS AND MAST CELLS |               |                                  |                      |
| Kidney                                 | Renal Tubule  | Nephropathy                      | Minimal              |
|  |               | Pigmentation                     | Minimal              |
| Liver                                  |               | Fatty Change                     | Diffuse, Mild        |
| Note: FATTY CHANGE TGLs = 6-3          |               |                                  |                      |
| Note: PIGMENT IN PORTAL RADICLES       |               |                                  |                      |
| Lung                                   |               | Infiltration Cellular            | Histiocyte, Mild     |
| Note: CHOLESTEROL CLEFTS               |               |                                  |                      |
| Lymph Node                             | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal  |
|  | Mesenteric    | Infiltration Cellular            | Histiocyte, Moderate |
|  | Mesenteric    | Infiltration Cellular            | Mast Cell, Mild      |
|  | Mesenteric    | Pigmentation                     | Minimal              |
| Note: INFILTRAT CELL TGLs = 3-2        |               |                                  |                      |
| Nose                                   |               | Inflammation                     | Acute, Minimal       |
| Pancreas                               | Acinus        | Adenoma                          |                      |
| Pituitary Gland                        | Pars Distalis | Adenoma                          |                      |
|  | Pars Distalis | Angiectasis                      | Moderate             |
| Note: ADENOMA TGLs = 7-8               |               |                                  |                      |
| Spleen                                 |               | Hematopoietic Cell Proliferation | Mild                 |
|  |               | Infiltration Cellular            | Histiocyte, Mild     |
|  |               | Pigmentation                     | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 158 | <b>TRT#:</b> 2                | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 611 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |                           |                    |             |
|---------------|---------------------------|--------------------|-------------|
| Stomach       | Forestomach               | Acanthosis         | Minimal     |
|               | Glandular                 | Inflammation       | Acute, Mild |
| Testes        | Bilateral, Interstit Cell | Adenoma            |             |
|               | Seminif Tub               | Atrophy            | Mild        |
|               | Interstit Cell            | Hyperplasia        | Mild        |
| Note: ADENOMA | TGLs = 5-6                |                    |             |
| Thymus        |                           | Depletion Lymphoid | Moderate    |
|               |                           | Pigmentation       | Minimal     |
| Thyroid Gland | C Cell                    | Hyperplasia        | Mild        |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 159

TRT#: 2

SEX: Male

DAY ON TEST: 509

DOSE: 0.025 G/KG 79 LM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Lymph Node - Mandibular | Nose                      | Pancreas                 | Parathyroid Gland          |
| Preputial Gland         | Prostate                  | Salivary Glands          | Seminal Vesicle            |
| Skin                    | Spleen                    | Thymus                   | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

MISSING

Mammary Gland

OBSERVATIONS

|  |               |                       |                      |
|--|---------------|-----------------------|----------------------|
| Liver  |               | Fatty Change          | Focal, Mild          |
| Lung   |               | Inflammation          | Acute, Minimal       |
|  |               | Pigmentation          | Mild                 |
| Note: MATERIAL IN THE LUMEN.                       |               |                       |                      |
| Note: TALL CILIATED BRONCHIAL EPITHELIUM. MUCINOUS |               |                       |                      |
| Lymph Node   | Mesenteric    | Infiltration Cellular | Histiocyte, Moderate |
| Note: INFILTRAT CELL TGLs = 2-8                    |               |                       |                      |
| Nose   |               |                       |                      |
| Note: GOBLET CELLS PROMINENT                       |               |                       |                      |
| Pituitary Gland                                    | Pars Distalis | Hyperplasia           | Mild                 |
| Note: HYPERPLASIA TGLs = 4-8                       |               |                       |                      |
| Note: HYPERPLASIA OR DEGRANULATED CELLS            |               |                       |                      |
| Stomach  | Forestomach   | Acanthosis            | Minimal              |
|  | Glandular     | Erosion               | Minimal              |
|  | Glandular     | Hemorrhage            | Minimal              |
|  | Forestomach   | Hyperkeratosis        | Mild                 |
|  | Glandular     | Hyperplasia           | Mild                 |
|  | Glandular     | Inflammation          | Acute, Mild          |
|  | Glandular     | Metaplasia            | Minimal              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 159

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 509

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |                |              |         |
|---------------|----------------|--------------|---------|
| Testes        | Glandular      | Pigmentation | Minimal |
| Thyroid Gland | Interstit Cell | Hyperplasia  | Mild    |
|               | C Cell         | Adenoma      |         |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 160

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone Marrow              | Brain                      | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              | Nose                    |
| Parathyroid Gland         | Preputial Gland          | Prostate                   | Salivary Glands         |
| Seminal Vesicle           | Stomach - Forestomach    | Stomach - Glandular        | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

**OBSERVATIONS**

|                                   |                    |                         |                      |
|-----------------------------------|--------------------|-------------------------|----------------------|
| Adrenal Gland                     | Bilateral, Medulla | Pheochromocytoma Benign |                      |
| Bone                              | Costochon Jct      | Fibrosis                | Mild                 |
|                                   | Costochon Jct      | Inflammation            | Chronic Active, Mild |
| Epididymis                        |                    | Mesothelioma Malignant  |                      |
| Heart                             |                    | Cardiomyopathy          | Mild                 |
| Intestine Large                   | Colon              | Mesothelioma Malignant  |                      |
| Kidney                            |                    | Nephropathy             | Minimal              |
|                                   | Renal Tubule       | Pigmentation            | Minimal              |
| Liver                             |                    | Basophilic Focus        |                      |
|                                   |                    | Mixed Cell Focus        |                      |
|                                   |                    | Pigmentation            | Minimal              |
| Lung                              | Alveolar Epith     | Hyperplasia             | Minimal              |
|                                   |                    | Inflammation            | Acute, Minimal       |
|                                   |                    | Pigmentation            | Minimal              |
| Note: [ INFLAMMATION ] TGLs = 4-2 |                    |                         |                      |
| Lymph Node                        | Mediastinal        | Infiltration Cellular   | Histiocyte, Mild     |
|                                   | Mesenteric         | Infiltration Cellular   | Histiocyte, Mild     |
|                                   | Mandibular         | Pigmentation            | Minimal              |
|                                   | Mediastinal        | Pigmentation            | Mild                 |
|                                   | Mesenteric         | Pigmentation            | Mild                 |
| Note: PIGMENT TGLs = 3-9          |                    |                         |                      |
| Pancreas                          | Acinus             | Hyperplasia             | Minimal              |
| Pituitary Gland                   | Pars Distalis      | Hyperplasia             | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 160

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |   |  |   |                     |
|--|---|--|---|---------------------|
| Note: HYPERPLASIA<br>Skin<br>Note: FIBROMA<br>Spleen | TGLs = 8-8<br>Subcut Tiss<br>TGLs = 1-13+13.1                       |  | Fibroma   |                     |
|  |   |  | Hematopoietic Cell Proliferation                            | Mild                |
|  |   |  | Infiltration Cellular                                       | Histiocyte, Minimal |
|  |   |  | Pigmentation  | Mild                |
|  |   |  | Pigmentation  | Hemosiderin, Mild   |
| Testes   | Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell<br>Tunic |  | Adenoma<br>Atrophy<br>Hyperplasia<br>Mesothelioma Malignant | Mild<br>Mild        |
| Note: ADENOMA  | TGLs = 5-6,6-6  |  |   |                     |
| PRIMARY CAUSE OF DEATH                               | -   |  |   |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 161

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 639

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Accident

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Kidney  
Mammary Gland  
Preputial Gland  
Skin  
Trachea

Adrenal Gland - Medulla  
Epididymis  
Liver  
Nose  
Prostate  
Spleen

Bone  
Esophagus  
Lymph Node - Mandibular  
Pancreas  
Salivary Glands  
Stomach - Forestomach

Bone Marrow  
Islets, Pancreatic  
Lymph Node - Mesenteric  
Parathyroid Gland  
Seminal Vesicle  
Thymus

**AUTO PRECLUDES DIAG.**

Intestine Large - Cecum  
Intestine Small - Ileum  
Urinary Bladder

Intestine Large - Colon  
Intestine Small - Jejunum

Intestine Large - Rectum  
Stomach - Glandular

Intestine Small - Duodenum  
Thyroid Gland

**OBSERVATIONS**

Heart  
Lung

Cardiomyopathy  
Hemorrhage  
Infiltration Cellular  
Pigmentation

Mild  
Minimal  
Histiocyte, Minimal  
Mild

Note: PIGMENT TGLs = 2-1+2

Pituitary Gland  
Testes

Pars Distalis  
Bilateral, Interstit Cell  
Interstit Cell

Adenoma  
Adenoma  
Hyperplasia

Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 162

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Mammary Gland           |
| Pancreas                 | Parathyroid Gland       | Preputial Gland         | Prostate                |
| Salivary Glands          | Seminal Vesicle         | Skin                    | Stomach - Forestomach   |
| Thyroid Gland            | Trachea                 | Urinary Bladder         |                         |

**OBSERVATIONS**

|   |              |                       |                        |
|---|--------------|-----------------------|------------------------|
| Bone Marrow                             |              | Pigmentation          | Minimal                |
| Heart                                   |              | Cardiomyopathy        | Mild                   |
| Intestine Small                         | Duodenum     | Pigmentation          | Minimal                |
|   | Jejunum      | Pigmentation          | Minimal                |
| Kidney                                  | Papilla      | Mineralization        | Minimal                |
|   |              | Nephropathy           | Mild                   |
|   | Renal Tubule | Pigmentation          | Mild                   |
| Liver                                   | Bile Duct    | Basophilic Focus      |                        |
|   |              | Hyperplasia           | Mild                   |
|   |              | Inflammation          | Granulomatous, Minimal |
|   |              | Pigmentation          | Mild                   |
| Note: PIGMENT                           | TGLs = 6-3   |                       |                        |
| Lung                                    |              | Infiltration Cellular | Histiocyte, Mild       |
|   |              | Inflammation          | Granulomatous, Minimal |
|   |              | Pigmentation          | Minimal                |
| Note: MUCINOUS MATERIAL IN A BRONCHIOLE |              |                       |                        |
| Lymph Node                              | Mandibular   | Degeneration          | Cystic, Mild           |
|   | Mediastinal  | Infiltration Cellular | Histiocyte, Minimal    |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Mild       |
|   | Mandibular   | Pigmentation          | Minimal                |
|   | Mediastinal  | Pigmentation          | Mild                   |
|   | Mesenteric   | Pigmentation          | Mild                   |
| Note: DEGEN                             | TGLs = 1-9   |                       |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 162 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                |                                  |                   |
|------------------------|----------------|----------------------------------|-------------------|
| Nose                   |                | Fungus                           | Mild              |
|                        |                | Inflammation                     | Acute, Moderate   |
| Pituitary Gland        | Pars Distalis  | Adenoma                          |                   |
|                        | Pars Distalis  | Angiectasis                      | Mild              |
| Note: ADENOMA          | TGLs = 8-8     |                                  |                   |
| Spleen                 |                | Hematopoietic Cell Proliferation | Mild              |
|                        |                | Infiltration Cellular            | Histiocyte, Mild  |
|                        |                | Pigmentation                     | Hemosiderin, Mild |
|                        |                | Pigmentation                     | Minimal           |
| Stomach                | Glandular      | Fibrosis                         | Mild              |
|                        | Glandular      | Metaplasia                       | Minimal           |
| Testes                 | Interstit Cell | Adenoma                          |                   |
|                        | Seminif Tub    | Atrophy                          | Marked            |
| Note: ADENOMA          | TGLs = 5-6     |                                  |                   |
| Note: ATROPHY          | TGLs = 4-6     |                                  |                   |
| Thymus                 |                | Pigmentation                     | Minimal           |
| PRIMARY CAUSE OF DEATH | -              |                                  |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 163

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 383

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                         |
|-------------------------|--------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow             |
| Brain                   | Epididymis               | Esophagus               | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      |
| Kidney                  | Mammary Gland            | Parathyroid Gland       | Pituitary Gland         |
| Preputial Gland         | Prostate                 | Salivary Glands         | Seminal Vesicle         |
| Skin                    | Stomach - Forestomach    | Thyroid Gland           | Trachea                 |
| Urinary Bladder         |                          |                         |                         |

**OBSERVATIONS**

|                 |                     |                  |                     |
|-----------------|---------------------|------------------|---------------------|
| Heart           | Artery              | Necrosis         | Fibrinoid, Mild     |
| Intestine Small | Duodenum            | Pigmentation     | Minimal             |
|                 | Jejunum             | Pigmentation     | Minimal             |
| Liver           |                     | Basophilic Focus |                     |
|                 |                     | Pigmentation     | Minimal             |
| Lung            | Artery, Mediastinum | Necrosis         | Fibrinoid, Mild     |
| Lymph Node      | Mandibular          | Pigmentation     | Minimal             |
|                 | Mediastinal         | Pigmentation     | Minimal             |
|                 | Mesenteric          | Pigmentation     | Mild                |
|                 | Pancreatic          | Pigmentation     | Mild                |
| Note: PIGMENT   | TGLs = 5-8          |                  |                     |
| Mesentery       | Artery              | Necrosis         | Fibrinoid, Moderate |
| Note: NECROSIS  | TGLs = 6-7+13       |                  |                     |
| Nose            |                     | Inflammation     | Acute, Moderate     |
| Pancreas        | Artery              | Necrosis         | Fibrinoid, Moderate |
| Note: NECROSIS  | TGLs = 4-9+13       |                  |                     |
| Spleen          |                     | Necrosis         | Moderate            |
|                 |                     | Pigmentation     | Hemosiderin, Mild   |
| Note: NECROSIS  | TGLs = 3-3          |                  |                     |
| Stomach         | Glandular           | Fibrosis         | Mild                |
|                 | Glandular           | Hyperplasia      | Minimal             |
|                 | Glandular           | Inflammation     | Acute, Mild         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 163

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 383

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Glandular

Metaplasia

Mild

Artery

Necrosis

Fibrinoid, Mild

Testes

Interstit Cell

Hyperplasia

Minimal

Thymus

Depletion Lymphoid

Mild

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**PRIMARY CAUSE OF DEATH**

-

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Animal Note: GOOD EXAMPLE OF FIBRINOID NECROSIS

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**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 165

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                    |                         |                         |
|--------------------------|--------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone               | Brain                   | Epididymis              |
| Esophagus                | Heart              | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Islets, Pancreatic | Lymph Node - Mandibular | Nose                    |
| Parathyroid Gland        | Preputial Gland    | Prostate                | Salivary Glands         |
| Seminal Vesicle          | Skin               | Thyroid Gland           | Trachea                 |
| Urinary Bladder          |                    |                         |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                       |                |                         |                        |
|---------------------------------------|----------------|-------------------------|------------------------|
| Adrenal Gland                         | Medulla        | Pheochromocytoma Benign |                        |
| Bone Marrow                           |                | Pigmentation            | Mild                   |
| Intestine Small                       | Duodenum       | Pigmentation            | Minimal                |
|                                       | Ileum          | Pigmentation            | Minimal                |
|                                       | Jejunum        | Pigmentation            | Minimal                |
| Kidney                                |                | Nephropathy             | Mild                   |
|                                       | Renal Tubule   | Pigmentation            | Minimal                |
| Liver                                 |                | Basophilic Focus        |                        |
|                                       |                | Clear Cell Focus        |                        |
|                                       |                | Eosinophilic Focus      |                        |
|                                       |                | Hepatocellular Adenoma  |                        |
|                                       |                | Pigmentation            | Minimal                |
| Note: [ HEPATOCLR ADEN ] TGLs = 7-3.1 |                |                         |                        |
| Lung                                  | Alveolar Epith | Hyperplasia             | Minimal                |
|                                       |                | Infiltration Cellular   | Histiocyte, Mild       |
|                                       |                | Inflammation            | Granulomatous, Minimal |
|                                       |                | Pigmentation            | Minimal                |
| Note: CHOLESTEROL CLEFTS              |                |                         |                        |
| [ Infiltration Cellular TGLS = 1-2 ]  |                |                         |                        |
| Lymph Node                            | Mediastinal    | Infiltration Cellular   | Histiocyte, Mild       |
|                                       | Mesenteric     | Infiltration Cellular   | Histiocyte, Moderate   |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 165      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 738  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                  |                           |                       |                      |
|----------------------------------|---------------------------|-----------------------|----------------------|
|                                  | Mediastinal               | Pigmentation          | Minimal              |
|                                  | Mesenteric                | Pigmentation          | Mild                 |
| Note: INFILTRAT CELL TGLs = 5-8  |                           |                       |                      |
| Nose                             |                           |                       |                      |
| Note: HYPERTROPHIED GOBLET CELLS |                           |                       |                      |
| Pancreas                         | Acinus                    | Hyperplasia           | Mild                 |
| Pituitary Gland                  | Pars Distalis             | Adenoma               |                      |
| Spleen                           |                           | Infiltration Cellular | Histiocyte, Mild     |
|                                  |                           | Pigmentation          | Minimal              |
|                                  |                           | Pigmentation          | Hemosiderin, Minimal |
| Stomach                          | Forestomach               | Acanthosis            | Mild                 |
|                                  | Glandular                 | Fibrosis              | Mild                 |
|                                  | Forestomach               | Hyperkeratosis        | Moderate             |
|                                  | Glandular                 | Metaplasia            | Minimal              |
|                                  | Glandular                 | Mineralization        | Minimal              |
| Note: HYPERKERATOSIS TGLs = 9-7  |                           |                       |                      |
| Note: ACANTHOSIS TGLs = 4-7      |                           |                       |                      |
| Testes                           | Bilateral, Interstit Cell | Adenoma               |                      |
|                                  | Seminif Tub               | Atrophy               | Mild                 |
| Note: ADENOMA TGLs = 2-6         |                           |                       |                      |
| Thymus                           |                           | Pigmentation          | Minimal              |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:27  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 167      TRT#: 3      SEX: Male      DAY ON TEST: 734  
 DOSE: 0.05 G/KG 79 HM      DISP: Moribund      HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Parathyroid Gland       | Prostate                  | Salivary Glands         | Seminal Vesicle          |
| Stomach - Forestomach   | Trachea                   | Urinary Bladder         |                          |

OBSERVATIONS

|   |                    |                         |                      |
|---|--------------------|-------------------------|----------------------|
| Adrenal Gland                             | Bilateral, Medulla | Pheochromocytoma Benign |                      |
| Note: PHEOCHROM BGN TGLs = 12-8           |                    |                         |                      |
| Bone Marrow                               |                    | Pigmentation            | Minimal              |
| Heart                                     |                    | Cardiomyopathy          | Moderate             |
| Intestine Small                           | Duodenum           | Pigmentation            | Mild                 |
| Kidney                                    |                    | Nephropathy             | Mild                 |
| Liver                                     |                    | Angiectasis             | Mild                 |
|   |                    | Basophilic Focus        |                      |
|   |                    | Fatty Change            | Focal, Minimal       |
|   |                    | Pigmentation            | Mild                 |
| Note: [ BASOPH FOCUS ] TGLs = 15,16-3+3.1 |                    |                         |                      |
| Lung                                      |                    | Hemorrhage              | Minimal              |
|   |                    | Infiltration Cellular   | Histiocyte, Mild     |
|   |                    | Inflammation            | Granulomatous, Mild  |
|   |                    | Pigmentation            | Mild                 |
| Note: INFILTRAT CELL TGLs = 9-1+2         |                    |                         |                      |
| Note: TALL BRONCHIAL EPITHELIUM           |                    |                         |                      |
| Lymph Node                                | Mandibular         | Infiltration Cellular   | Histiocyte, Mild     |
|   | Mediastinal        | Infiltration Cellular   | Histiocyte, Mild     |
|   | Mesenteric         | Infiltration Cellular   | Histiocyte, Moderate |
|   | Mandibular         | Pigmentation            | Minimal              |
|   | Mediastinal        | Pigmentation            | Mild                 |
|   | Mesenteric         | Pigmentation            | Mild                 |
| Note: INFILTRAT CELL TGLs = 2-9,8-13,10-8 |                    |                         |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 167      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 734  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                       |                           |                                  |                   |
|---------------------------------------|---------------------------|----------------------------------|-------------------|
| Mesentery<br>[ Necrosis TGLS = 7-14 ] | Fat                       | Necrosis                         | Marked            |
| Nose                                  |                           | Inflammation                     | Acute, Moderate   |
| Pancreas                              | Acinus                    | Hyperplasia                      | Moderate          |
| Pituitary Gland                       | Pars Distalis             | Hyperplasia                      | Mild              |
| Preputial Gland                       |                           | Necrosis                         | Mild              |
| Note: NECROSIS      TGLs = 3-10       |                           |                                  |                   |
| Skin                                  |                           | Hemorrhage                       | Mild              |
| Note: HEMORRHAGE      TGLs = 4-14     |                           |                                  |                   |
| Spleen                                |                           | Hematopoietic Cell Proliferation | Mild              |
|                                       |                           | Infiltration Cellular            | Histiocyte, Mild  |
|                                       |                           | Pigmentation                     | Hemosiderin, Mild |
|                                       |                           | Pigmentation                     | Mild              |
| Stomach                               | Glandular                 | Pigmentation                     | Minimal           |
| Testes                                | Bilateral, Interstit Cell | Adenoma                          |                   |
|                                       | Seminif Tub               | Atrophy                          | Mild              |
| Note: ADENOMA      TGLs = 5-6         |                           |                                  |                   |
| Thymus                                |                           | Depletion Lymphoid               | Mild              |
|                                       |                           | Pigmentation                     | Minimal           |
| Thyroid Gland                         | C Cell                    | Adenoma                          |                   |
| PRIMARY CAUSE OF DEATH                | -                         |                                  |                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 168

TRT#: 3

SEX: Male

DAY ON TEST: 620

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Pituitary Gland         | Preputial Gland           |
| Prostate                 | Salivary Glands            | Seminal Vesicle         | Skin                      |
| Thymus                   | Thyroid Gland              | Urinary Bladder         |                           |

MISSING

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

OBSERVATIONS

|   |             |                                  |                      |
|---|-------------|----------------------------------|----------------------|
| Adrenal Gland<br>Note: PHEOCHROM MAL TGLs = 5-8.1   | Medulla     | Pheochromocytoma Malignant       |                      |
| Heart   |             | Cardiomyopathy                   | Mild                 |
| Kidney  |             | Nephropathy                      | Mild                 |
| Liver   |             | Basophilic Focus                 |                      |
|   |             | Fatty Change                     | Focal, Minimal       |
| Lung  | Bile Duct   | Hyperplasia                      | Mild                 |
|   |             | Edema                            | Mild                 |
|   |             | Infiltration Cellular            | Histiocyte, Mild     |
|   |             | Inflammation                     | Acute, Moderate      |
|   |             | Pigmentation                     | Mild                 |
| Note: PIGMENT TGLs = 2-1+2+2.1<br>Note: MORE LIKE BRONCHOPNEUMONIA<br>Note: INFLAMMATION TGLs = 6-1+2+2.1 |             |                                  |                      |
| Lymph Node  | Mesenteric  | Infiltration Cellular            | Histiocyte, Moderate |
| Nose  |             | Inflammation                     | Acute, Mild          |
| Pancreas  | Acinus      | Hyperplasia                      | Mild                 |
| Spleen  |             | Hematopoietic Cell Proliferation | Mild                 |
|   |             | Infiltration Cellular            | Histiocyte, Mild     |
| Stomach   | Forestomach | Acanthosis                       | Mild                 |
|   | Glandular   | Fibrosis                         | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                   |                         |
|-----------------------|------------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 168 | <b>TRT#:</b> 3               | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 620 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |                           |              |                   |
|---------------|---------------------------|--------------|-------------------|
| Testes        | Glandular                 | Hemorrhage   | Minimal           |
|               | Glandular                 | Metaplasia   | Minimal           |
|               | Bilateral, Interstit Cell | Adenoma      |                   |
|               | Seminif Tub               | Atrophy      | Mild              |
|               | Interstit Cell            | Hyperplasia  | Mild              |
| Note: ADENOMA | TGLs = 3-6                |              |                   |
| Trachea       |                           | Inflammation | Acute, Mild       |
|               |                           | Metaplasia   | Squamous, Minimal |

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PRIMARY CAUSE OF DEATH

-

Animal Note: THE ADRENAL GLAND (TGL #5).

Animal Note: TGL #4 PROBABLY REFERS TO BLOOD AROUND

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 169

TRT#: 3

SEX: Male

DAY ON TEST: 254

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                     | Epididymis              | Esophagus                | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Kidney                   | Lymph Node - Mandibular |
| Lymph Node - Mesenteric   | Mammary Gland           | Nose                     | Pancreas                |
| Pituitary Gland           | Preputial Gland         | Prostate                 | Salivary Glands         |
| Seminal Vesicle           | Skin                    | Thyroid Gland            | Trachea                 |
| Urinary Bladder           |                         |                          |                         |

MISSING

Parathyroid Gland

OBSERVATIONS

|   |                |                    |                   |
|---|----------------|--------------------|-------------------|
| Intestine Small   | Duodenum       | Pigmentation       | Minimal           |
| Liver   |                | Fatty Change       | Focal, Minimal    |
| Note: FATTY CHANGE  | TGLs = 5-3     |                    |                   |
| Lung  |                | Atelectasis        | Mild              |
|   |                | Congestion         | Minimal           |
|   |                | Inflammation       | Acute, Moderate   |
|   |                | Pigmentation       | Moderate          |
| Note: TALL EPITHELIUM                                     |                |                    |                   |
| Note: MUCINOUS MATERIAL (PAS +VE) IN MANY BRONCHIOLES AND |                |                    |                   |
| [ Atelectasis TGLS = 1-1 ]                                |                |                    |                   |
| [ Inflammation TGLS = 3-1+2 ]                             |                |                    |                   |
| [ Pigmentation TGLS = 2-1 ]                               |                |                    |                   |
| Spleen  |                | Depletion Lymphoid | Mild              |
|   |                | Pigmentation       | Hemosiderin, Mild |
| Stomach   | Forestomach    | Acanthosis         | Minimal           |
|   | Glandular      | Hemorrhage         | Mild              |
|   | Forestomach    | Hyperkeratosis     | Mild              |
|   | Glandular      | Inflammation       | Acute, Minimal    |
| Testes  | Interstit Cell | Hyperplasia        | Mild              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 169

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 254

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Thymus

Pigmentation

Minimal

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 171

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                         |                          |
|-------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                    | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Islets, Pancreatic      | Mammary Gland           | Nose                     |
| Parathyroid Gland       | Preputial Gland         | Prostate                | Salivary Glands          |
| Seminal Vesicle         | Skin                    | Thyroid Gland           | Trachea                  |
| Urinary Bladder         |                         |                         |                          |

**OBSERVATIONS**

|                                       |                |                                  |                      |
|---------------------------------------|----------------|----------------------------------|----------------------|
| Adrenal Gland                         | Medulla        | Pheochromocytoma Benign          |                      |
| Bone Marrow                           |                | Pigmentation                     | Minimal              |
| Heart                                 |                | Cardiomyopathy                   | Mild                 |
| Intestine Small                       | Duodenum       | Pigmentation                     | Minimal              |
|                                       | Jejunum        | Pigmentation                     | Minimal              |
| Kidney                                |                | Nephropathy                      | Mild                 |
|                                       | Renal Tubule   | Pigmentation                     | Minimal              |
| Liver                                 |                | Basophilic Focus                 |                      |
|                                       |                | Hepatocellular Adenoma           |                      |
|                                       |                | Mixed Cell Focus                 |                      |
|                                       |                | Pigmentation                     | Mild                 |
| Note: [ HEPATOCLR ADEN ] TGLs = 6-3.1 |                |                                  |                      |
| Lung                                  | Alveolar Epith | Hyperplasia                      | Mild                 |
|                                       |                | Infiltration Cellular            | Histiocyte, Mild     |
| Lymph Node                            | Mediastinal    | Hematopoietic Cell Proliferation | Mild                 |
|                                       | Mandibular     | Infiltration Cellular            | Histiocyte, Minimal  |
|                                       | Mediastinal    | Infiltration Cellular            | Histiocyte, Minimal  |
|                                       | Mesenteric     | Infiltration Cellular            | Histiocyte, Moderate |
|                                       | Mesenteric     | Mineralization                   | Minimal              |
|                                       | Mandibular     | Pigmentation                     | Minimal              |
|                                       | Mediastinal    | Pigmentation                     | Minimal              |
|                                       | Mesenteric     | Pigmentation                     | Mild                 |

Note: HEMA CELL PROL TGLs = 2-2

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 171

TRT#: 3

SEX: Male

DAY ON TEST: 738

DOSE: 0.05 G/KG 79 HM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                  |                           |                                  |                   |
|------------------|---------------------------|----------------------------------|-------------------|
| Pancreas         | Acinus                    | Hyperplasia                      | Mild              |
| Pituitary Gland  | Pars Distalis             | Hyperplasia                      | Mild              |
| Spleen           |                           | Hematopoietic Cell Proliferation | Mild              |
|                  |                           | Infiltration Cellular            | Histiocyte, Mild  |
|                  |                           | Pigmentation                     | Mild              |
|                  |                           | Pigmentation                     | Hemosiderin, Mild |
| Stomach          | Forestomach               | Acanthosis                       | Mild              |
|                  | Glandular                 | Fibrosis                         | Mild              |
|                  | Glandular                 | Hyperplasia                      | Minimal           |
|                  | Glandular                 | Metaplasia                       | Minimal           |
|                  | Glandular                 | Pigmentation                     | Minimal           |
|                  | Fat                       | Proliferation                    | Mild              |
| Note: ACANTHOSIS | TGLs = 8-7                |                                  |                   |
| Testes           | Bilateral, Interstit Cell | Adenoma                          |                   |
|                  | Seminif Tub               | Atrophy                          | Mild              |
| Note: ADENOMA    | TGLs = 3-6,4-6            |                                  |                   |
| Thymus           |                           | Pigmentation                     | Minimal           |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 173

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                         |                          |
|-------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                    | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Islets, Pancreatic      | Mammary Gland           | Nose                     |
| Parathyroid Gland       | Pituitary Gland         | Preputial Gland         | Prostate                 |
| Salivary Glands         | Seminal Vesicle         | Skin                    | Stomach - Forestomach    |
| Thyroid Gland           | Trachea                 | Urinary Bladder         |                          |

**OBSERVATIONS**

|   |                    |                         |                        |
|---|--------------------|-------------------------|------------------------|
| Adrenal Gland                           | Bilateral, Medulla | Pheochromocytoma Benign |                        |
| Note: PHEOCHROM BGN                     | TGLs = 5-8         |                         |                        |
| Bone Marrow                             |                    | Pigmentation            | Mild                   |
| Heart                                   |                    | Cardiomyopathy          | Mild                   |
| Intestine Small                         | Duodenum           | Pigmentation            | Minimal                |
|   | Jejunum            | Pigmentation            | Minimal                |
| Kidney                                  |                    | Nephropathy             | Mild                   |
|   | Renal Tubule       | Pigmentation            | Minimal                |
| Liver                                   |                    | Clear Cell Focus        |                        |
|   |                    | Inflammation            | Granulomatous, Minimal |
|   |                    | Mixed Cell Focus        |                        |
|   |                    | Pigmentation            | Mild                   |
| Note: MIXED CL FOCUS                    | TGLs = 6-3         |                         |                        |
| Lung                                    |                    | Atelectasis             | Mild                   |
|   |                    | Infiltration Cellular   | Histiocyte, Mild       |
|   |                    | Inflammation            | Acute, Mild            |
|   |                    | Pigmentation            | Mild                   |
| Note: MUCINOUS MATERIAL IN A BRONCHIOLE |                    |                         |                        |
| Note: PIGMENT                           | TGLs = 2-1+2,3-1+2 |                         |                        |
| Note: ATELECTASIS                       | TGLs = 2-1         |                         |                        |
| Lymph Node                              | Mandibular         | Infiltration Cellular   | Histiocyte, Mild       |
|   | Mediastinal        | Infiltration Cellular   | Histiocyte, Mild       |
|   | Mesenteric         | Infiltration Cellular   | Histiocyte, Moderate   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 173 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                 |                           |                                  |                   |
|---------------------------------|---------------------------|----------------------------------|-------------------|
|                                 | Mandibular                | Pigmentation                     | Mild              |
|                                 | Mediastinal               | Pigmentation                     | Minimal           |
|                                 | Mesenteric                | Pigmentation                     | Mild              |
| Note: INFILTRAT CELL TGLs = 1-9 |                           |                                  |                   |
| Pancreas                        | Acinus                    | Hyperplasia                      | Mild              |
| Spleen                          |                           | Hematopoietic Cell Proliferation | Mild              |
|                                 |                           | Infiltration Cellular            | Histiocyte, Mild  |
|                                 |                           | Pigmentation                     | Hemosiderin, Mild |
|                                 |                           | Pigmentation                     | Mild              |
| Stomach                         | Glandular                 | Fibrosis                         | Minimal           |
|                                 | Glandular                 | Pigmentation                     | Minimal           |
| Testes                          | Bilateral, Interstit Cell | Adenoma                          |                   |
|                                 | Seminif Tub               | Atrophy                          | Mild              |
|                                 | Interstit Cell            | Hyperplasia                      | Minimal           |
| Note: ADENOMA TGLs = 4-6        |                           |                                  |                   |
| Thymus                          |                           | Pigmentation                     | Minimal           |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 175

TRT#: 3

SEX: Male

DAY ON TEST: 738

DOSE: 0.05 G/KG 79 HM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Esophagus  
Intestine Small - Ileum  
Nose  
Salivary Glands  
Trachea

Bone  
Intestine Large - Cecum  
Intestine Small - Jejunum  
Pituitary Gland  
Seminal Vesicle  
Urinary Bladder

Brain  
Intestine Large - Colon  
Islets, Pancreatic  
Preputial Gland  
Skin

Epididymis  
Intestine Large - Rectum  
Mammary Gland  
Prostate  
Thyroid Gland

MISSING

Parathyroid Gland

OBSERVATIONS

Adrenal Gland  
Note: PHEOCHROM BGN TGLs = 3-8

Bilateral, Medulla

Pheochromocytoma Benign

Bone Marrow

Pigmentation

Minimal

Heart

Cardiomyopathy

Mild

Intestine Small

Duodenum

Pigmentation

Minimal

Note: PANCREATIC TISSUE OR METAPLASIA IN DUODENUM

Kidney

Nephropathy

Mild

Renal Tubule

Pigmentation

Minimal

Liver

Basophilic Focus

Clear Cell Focus

Eosinophilic Focus

Hepatocellular Adenoma

Inflammation

Granulomatous, Minimal

Pigmentation

Mild

Note: [ HEPATOCLR ADEN ] TGLs = 9-3

Note: PIGMENT TGLs = 8-3

Lung

Infiltration Cellular

Histiocyte, Mild

Inflammation

Granulomatous, Mild

Pigmentation

Cholesterol, Mild

Note: INFILTRAT CELL TGLs = 5-1+1.1+2

Note: [ INFLAMMATION ] TGLs = 4-1+1.1+2

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 175

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |   |  |   |
|--|---|--|---|
| <p>Note: PIGMENT TGLs = 7-1+1.1+2</p> <p>Lymph Node</p>              | <p>Mandibular</p> <p>Mediastinal</p> <p>Mesenteric</p> <p>Mesenteric</p> <p>Mediastinal</p> <p>Mesenteric</p> | <p>Infiltration Cellular</p> <p>Infiltration Cellular</p> <p>Infiltration Cellular</p> <p>Mineralization</p> <p>Pigmentation</p> <p>Pigmentation</p> | <p>Histiocyte, Minimal</p> <p>Histiocyte, Mild</p> <p>Histiocyte, Moderate</p> <p>Mild</p> <p>Minimal</p> <p>Mild</p> |
| <p>Note: INFILTRAT CELL TGLs = 1-9</p> <p>Pancreas</p> <p>Spleen</p> | <p>Acinus</p>   | <p>Hyperplasia</p> <p>Hematopoietic Cell Proliferation</p> <p>Infiltration Cellular</p> <p>Pigmentation</p> <p>Pigmentation</p>                      | <p>Mild</p> <p>Mild</p> <p>Histiocyte, Minimal</p> <p>Hemosiderin, Minimal</p> <p>Minimal</p>                         |
| <p>Stomach</p>   | <p>Forestomach</p> <p>Glandular</p> <p>Glandular</p> <p>Glandular</p> <p>Fat</p>                              | <p>Acanthosis</p> <p>Fibrosis</p> <p>Metaplasia</p> <p>Pigmentation</p> <p>Proliferation</p>   | <p>Mild</p> <p>Mild</p> <p>Minimal</p> <p>Mild</p> <p>Minimal</p>   |
| <p>Note: ACANTHOSIS TGLs = 11-7</p> <p>Testes</p>                    | <p>Bilateral, Interstit Cell</p> <p>Seminif Tub</p>   | <p>Adenoma</p> <p>Atrophy</p>  | <p></p> <p>Mild</p>   |
| <p>Note: ADENOMA TGLs = 2-6</p> <p>Thymus</p>                        | <p></p>   | <p>Pigmentation</p>  | <p>Minimal</p>  |
| <p>PRIMARY CAUSE OF DEATH</p>  |   | <p>-</p>   |   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 176

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Bone Marrow             | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Lymph Node - Mandibular | Nose                    |
| Parathyroid Gland        | Preputial Gland         | Prostate                | Salivary Glands         |
| Seminal Vesicle          | Skin                    | Trachea                 | Urinary Bladder         |

**MISSING**

|                            |                    |          |
|----------------------------|--------------------|----------|
| Intestine Small - Duodenum | Islets, Pancreatic | Pancreas |
|----------------------------|--------------------|----------|

**OBSERVATIONS**

|  |                    |                         |                        |
|--|--------------------|-------------------------|------------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 6-8,7-8                            | Bilateral, Medulla | Pheochromocytoma Benign |                        |
| Heart  |                    | Cardiomyopathy          | Mild                   |
| Intestine Small  | Jejunum            | Pigmentation            | Minimal                |
| Kidney   |                    | Nephropathy             | Mild                   |
| Liver  |                    | Hepatocellular Adenoma  |                        |
|  |                    | Inflammation            | Granulomatous, Minimal |
|  |                    | Mixed Cell Focus        |                        |
|  |                    | Pigmentation            | Mild                   |
| Note: [ HEPATOCLR ADEN ] TGLs = 8-3  |                    |                         |                        |
| Lung   |                    | Infiltration Cellular   | Histiocyte, Mild       |
|  |                    | Inflammation            | Acute, Mild            |
|  |                    | Pigmentation            | Mild                   |
| [ Infiltration Cellular TGLS = 5-1+2 ]   |                    |                         |                        |
| Lymph Node   | Mesenteric         | Infiltration Cellular   | Histiocyte, Mild       |
|  | Mesenteric         | Pigmentation            | Mild                   |
| Mammary Gland<br>Note: FIBROADENOMA TGLs = 2-13<br>Note: SECTION #13A NECROTIC |                    | Fibroadenoma            |                        |
| Pituitary Gland  | Pars Distalis      | Adenoma                 |                        |
|  | Pars Distalis      | Angiectasis             | Mild                   |
| Note: ADENOMA TGLs = 10-8  |                    |                         |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 176 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

|               |                           |                                  |                   |
|---------------|---------------------------|----------------------------------|-------------------|
| Spleen        |                           | Hematopoietic Cell Proliferation | Mild              |
|               |                           | Infiltration Cellular            | Histiocyte, Mild  |
|               |                           | Pigmentation                     | Mild              |
|               |                           | Pigmentation                     | Hemosiderin, Mild |
| Stomach       | Forestomach               | Acanthosis                       | Minimal           |
|               | Glandular                 | Fibrosis                         | Mild              |
|               | Glandular                 | Hyperplasia                      | Mild              |
|               | Glandular                 | Metaplasia                       | Minimal           |
|               | Fat                       | Proliferation                    | Minimal           |
| Testes        | Bilateral, Interstit Cell | Adenoma                          |                   |
|               | Seminif Tub               | Atrophy                          | Mild              |
| Note: ADENOMA | TGLs = 3-6                |                                  |                   |
| Thymus        |                           | Pigmentation                     | Minimal           |
| Thyroid Gland | C Cell                    | Hyperplasia                      | Mild              |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 177

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 338

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Intestine Large - Cecum  
Kidney  
Parathyroid Gland  
Salivary Glands  
Stomach - Glandular  
Urinary Bladder

Adrenal Gland - Medulla  
Epididymis  
Intestine Large - Colon  
Lymph Node - Mandibular  
Pituitary Gland  
Seminal Vesicle  
Testes

Bone  
Esophagus  
Intestine Large - Rectum  
Nose  
Preputial Gland  
Skin  
Thyroid Gland

Bone Marrow  
Heart  
Islets, Pancreatic  
Pancreas  
Prostate  
Stomach - Forestomach  
Trachea

**MISSING**

Lymph Node - Mesenteric

Mammary Gland

**AUTO PRECLUDES DIAG.**

Intestine Small - Duodenum

Intestine Small - Ileum

Intestine Small - Jejunum

**OBSERVATIONS**

Liver  
Lung

Bronchiole, Epithelium

Basophilic Focus  
Congestion  
Infiltration Cellular  
Inflammation  
Metaplasia  
Pigmentation

Moderate  
Histiocyte, Mild  
Granulomatous, Minimal  
Squamous, Mild  
Mild

Note: E

Note: SQUAMOUS METAPLASIA OF THE BRONCHIAL EPITH

Note: HEAVY MUCINOUS EXUDATE IN MANY BRONCHIOLES.

[ Congestion TGLS = 2-1+2 ]

Spleen  
Thymus

Pigmentation  
Pigmentation

Hemosiderin, Mild  
Minimal

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 179

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Bone                     | Brain                   | Epididymis                |
| Esophagus               | Eye                      | Harderian Gland         | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland            | Nose                    | Pancreas                  |
| Parathyroid Gland       | Preputial Gland          | Salivary Glands         | Seminal Vesicle           |
| Skin                    | Stomach - Forestomach    | Thyroid Gland           | Trachea                   |
| Urinary Bladder         |                          |                         |                           |

**OBSERVATIONS**

|                                   |              |                              |                     |
|-----------------------------------|--------------|------------------------------|---------------------|
| Adrenal Gland                     | Medulla      | Hyperplasia                  | Minimal             |
|                                   | Medulla      | Pheochromocytoma Benign      |                     |
| Note: PHEOCHROM BGN TGLs = 5-8    |              |                              |                     |
| Bone Marrow                       |              | Pigmentation                 | Mild                |
| Heart                             |              | Cardiomyopathy               | Mild                |
|                                   |              | Pigmentation                 | Minimal             |
| Intestine Small                   | Duodenum     | Pigmentation                 | Minimal             |
| Kidney                            | Papilla      | Mineralization               | Minimal             |
|                                   |              | Nephropathy                  | Mild                |
|                                   | Renal Tubule | Pigmentation                 | Minimal             |
| Liver                             |              | Basophilic Focus             |                     |
|                                   |              | Clear Cell Focus             |                     |
|                                   | Bile Duct    | Hyperplasia                  | Mild                |
|                                   |              | Inflammation                 | Granulomatous, Mild |
|                                   |              | Pigmentation                 | Mild                |
| Note: [ BASOPH FOCUS ] TGLs = 7-3 |              |                              |                     |
| Note: CLEAR CL FOCUS TGLs = 9-3   |              |                              |                     |
| Lung                              |              | Alveolar/Bronchiolar Adenoma |                     |
|                                   |              | Infiltration Cellular        | Histiocyte, Mild    |
|                                   |              | Pigmentation                 | Minimal             |
| Lymph Node                        | Mandibular   | Infiltration Cellular        | Histiocyte, Mild    |
|                                   | Mediastinal  | Infiltration Cellular        | Histiocyte, Mild    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 179 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                      |                           |                                  |                      |
|----------------------|---------------------------|----------------------------------|----------------------|
|                      | Mesenteric                | Infiltration Cellular            | Histiocyte, Moderate |
|                      | Mandibular                | Pigmentation                     | Minimal              |
|                      | Mediastinal               | Pigmentation                     | Minimal              |
|                      | Mesenteric                | Pigmentation                     | Mild                 |
| Note: INFILTRAT CELL | TGLs = 2-9,6-8            |                                  |                      |
| Pituitary Gland      | Pars Distalis             | Hyperplasia                      | Mild                 |
| Prostate             | Epithelium                | Hyperplasia                      | Mild                 |
| Spleen               |                           | Hematopoietic Cell Proliferation | Mild                 |
|                      |                           | Infiltration Cellular            | Histiocyte, Mild     |
|                      |                           | Pigmentation                     | Hemosiderin, Mild    |
|                      |                           | Pigmentation                     | Mild                 |
| Stomach              | Glandular                 | Fibrosis                         | Mild                 |
|                      | Glandular                 | Metaplasia                       | Mild                 |
|                      | Glandular                 | Pigmentation                     | Minimal              |
|                      | Fat                       | Proliferation                    | Mild                 |
| Testes               | Bilateral, Interstit Cell | Adenoma                          |                      |
|                      | Interstit Cell            | Hyperplasia                      | Mild                 |
| Note: ADENOMA        | TGLs = 4-6                |                                  |                      |
| Thymus               |                           | Pigmentation                     | Minimal              |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 182

TRT#: 3

SEX: Male

DAY ON TEST: 738

DOSE: 0.05 G/KG 79 HM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                         |                          |
|---------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex    | Bone                    | Brain                   | Epididymis               |
| Esophagus                 | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular | Mammary Gland            |
| Pancreas                  | Parathyroid Gland       | Prostate                | Salivary Glands          |
| Seminal Vesicle           | Trachea                 | Urinary Bladder         |                          |

**MISSING**

Thymus

**OBSERVATIONS**

|                 |             |                         |                        |
|-----------------|-------------|-------------------------|------------------------|
| Adrenal Gland   | Medulla     | Hyperplasia             | Mild                   |
|                 | Medulla     | Pheochromocytoma Benign |                        |
| Bone Marrow     |             | Pigmentation            | Minimal                |
| Eye             | Retina      | Atrophy                 | Mild                   |
| Harderian Gland |             | Inflammation            | Chronic Active, Mild   |
| Heart           |             | Cardiomyopathy          | Mild                   |
| Intestine Small | Duodenum    | Pigmentation            | Minimal                |
|                 | Ileum       | Pigmentation            | Minimal                |
| Kidney          |             | Nephropathy             | Mild                   |
| Liver           |             | Degeneration            | Cystic, Mild           |
|                 |             | Eosinophilic Focus      |                        |
|                 |             | Fatty Change            | Focal, Mild            |
|                 |             | Inflammation            | Granulomatous, Minimal |
|                 |             | Mixed Cell Focus        |                        |
|                 |             | Pigmentation            | Mild                   |
|                 |             | Infiltration Cellular   | Histiocyte, Mild       |
|                 |             | Pigmentation            | Minimal                |
| Lymph Node      | Mediastinal | Infiltration Cellular   | Histiocyte, Mild       |
|                 | Mesenteric  | Infiltration Cellular   | Histiocyte, Moderate   |

Note: MIXED CELL FOCUS IS USED IN PREFERENCE TO NEO-

Note: PLASTIC NODULE AS COMPRESSION IS NOT OBVIOUS

Note: MIXED CL FOCUS TGLs = 8-3.1

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

| ANIMAL ID: 182  | TRT#: 3<br>DOSE: 0.05 G/KG 79 HM | SEX: Male<br>DISP: Terminal Sacrifice | DAY ON TEST: 738<br>HISTO: |
|---|----------------------------------|---------------------------------------|----------------------------|
| <b>ORGAN AND ACCOUNTABLE SITE STATUS</b>  |                                  |                                       |                            |
|   | Mesenteric                       | Infiltration Cellular                 | Mast Cell, Mild            |
|   | Mediastinal                      | Pigmentation                          | Minimal                    |
|   | Mesenteric                       | Pigmentation                          | Mild                       |
| Note: INFILTRAT CELL TGLs = 7-8<br>Nose   |                                  | Fungus                                | Moderate                   |
|   |                                  | Inflammation                          | Acute, Moderate            |
| Pituitary Gland   | Pars Distalis                    | Adenoma                               |                            |
|   | Pars Distalis                    | Angiectasis                           | Mild                       |
| Note: ADENOMA TGLs = 10-8<br>Preputial Gland  |                                  | Necrosis                              | Mild                       |
| Skin  |                                  | Hyperkeratosis                        | Moderate                   |
|   |                                  | Keratoacanthoma                       |                            |
|   |                                  | Squamous Cell Papilloma               |                            |
| Note: [ KERATOACANTHMA ] TGLs = 3-13<br>Note: [ PAPILOMA SQUA ] TGLs = 2-14<br>Spleen |                                  | Fibrosis                              | Mild                       |
|   |                                  | Hematopoietic Cell Proliferation      | Mild                       |
|   |                                  | Infiltration Cellular                 | Histiocyte, Mild           |
|   |                                  | Pigmentation                          | Mild                       |
|   |                                  | Pigmentation                          | Hemosiderin, Mild          |
| Note: INFILTRAT CELL TGLs = 6-3<br>Stomach  | Forestomach                      | Basosquamous Tumor Benign             |                            |
|   | Glandular                        | Fibrosis                              | Mild                       |
|   | Glandular                        | Hyperplasia                           | Mild                       |
|   | Glandular                        | Metaplasia                            | Mild                       |
|   | Fat                              | Proliferation                         | Minimal                    |
| Note: BASOSQU TM BGN TGLs = 11-7.1<br>Testes  | Bilateral, Interstit Cell        | Adenoma                               |                            |
| Note: ADENOMA TGLs = 5-6<br>Thyroid Gland   | Follicular Cel                   | Carcinoma                             |                            |
| PRIMARY CAUSE OF DEATH  | -                                |                                       |                            |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 183      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 264  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                            |                         |                           |
|-------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                   | Epididymis                 | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Pancreas                | Parathyroid Gland          | Preputial Gland         | Prostate                  |
| Salivary Glands         | Seminal Vesicle            | Skin                    | Stomach - Forestomach     |
| Testes                  | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**MISSING**

Intestine Large - Rectum      Pituitary Gland

**OBSERVATIONS**

|   |              |                                  |                   |
|---|--------------|----------------------------------|-------------------|
| Heart   |              | Cardiomyopathy                   | Mild              |
| Kidney  | Papilla      | Mineralization                   | Minimal           |
|   | Renal Tubule | Pigmentation                     | Minimal           |
| Liver   | Bile Duct    | Hyperplasia                      | Mild              |
|   |              | Pigmentation                     | Minimal           |
| Lung  |              | Atelectasis                      | Mild              |
|   |              | Infiltration Cellular            | Histiocyte, Mild  |
|   |              | Pigmentation                     | Mild              |
| Note: MUCINOUS MATERIAL IN MANY BRONCHIOLES. TALL |              |                                  |                   |
| Note: CILIATED BRONCHIAL EPITHELIUM               |              |                                  |                   |
| [ Infiltration Cellular TGLS = 2-1+2 ]            |              |                                  |                   |
| [ Pigmentation TGLS = 1-2 ]                       |              |                                  |                   |
| Lymph Node  | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild  |
|   | Pancreatic   | Pigmentation                     | Minimal           |
| Spleen  |              | Hematopoietic Cell Proliferation | Mild              |
|   |              | Pigmentation                     | Hemosiderin, Mild |
|   |              | Pigmentation                     | Minimal           |
| Stomach   | Glandular    | Fibrosis                         | Minimal           |
|   | Glandular    | Hyperplasia                      | Mild              |
|   | Glandular    | Inflammation                     | Acute, Minimal    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 183

**TRT#:** 3  
**DOSE:** 0.05 G/KG 79 HM

**SEX:** Male  
**DISP:** Moribund

**DAY ON TEST:** 264  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|        |           |                            |                 |
|--------|-----------|----------------------------|-----------------|
| Thymus | Glandular | Metaplasia<br>Pigmentation | Mild<br>Minimal |
|--------|-----------|----------------------------|-----------------|

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 184

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 690

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                         |                          |
|---------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Medulla   | Bone                    | Brain                   | Epididymis               |
| Esophagus                 | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular | Mammary Gland            |
| Nose                      | Pancreas                | Parathyroid Gland       | Prostate                 |
| Salivary Glands           | Seminal Vesicle         | Skin                    | Trachea                  |
| Urinary Bladder           |                         |                         |                          |

**OBSERVATIONS**

|   |               |                       |                      |
|---|---------------|-----------------------|----------------------|
| Adrenal Gland   | Cortex        | Infarct               | Marked               |
| Note: 1991 CONVERSION DISCREPANCY. ORIGINAL DIAGNOSIS SITE NOT SPECIFIED. |               |                       |                      |
| Note: INFARCT TGLs = 6-8  |               |                       |                      |
| Bone Marrow   |               | Pigmentation          | Minimal              |
| Heart   |               | Cardiomyopathy        | Mild                 |
| Intestine Small   | Duodenum      | Pigmentation          | Minimal              |
|   | Ileum         | Pigmentation          | Minimal              |
| Kidney  |               | Nephropathy           | Mild                 |
|   | Renal Tubule  | Pigmentation          | Minimal              |
| Liver   |               | Basophilic Focus      |                      |
|   |               | Eosinophilic Focus    |                      |
|   |               | Necrosis              | Mild                 |
|   |               | Pigmentation          | Minimal              |
| Note: [ EOSIN FOCUS ] TGLs = 10-3,11-3                                    |               |                       |                      |
| Note: NECROSIS TGLs = 12-3.1  |               |                       |                      |
| Note: PIGMENT TGLs = 8-3+3.1  |               |                       |                      |
| Lung  |               | Infiltration Cellular | Histiocyte, Minimal  |
|   |               | Pigmentation          | Mild                 |
| Note: PIGMENT TGLs = 4-1+2  |               |                       |                      |
| Lymph Node  | Mesenteric    | Infiltration Cellular | Histiocyte, Moderate |
|   | Mesenteric    | Pigmentation          | Mild                 |
| Pituitary Gland   | Pars Distalis | Adenoma               |                      |
| Preputial Gland   |               | Carcinoma             |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 184 | <b>TRT#:</b> 3               | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 690 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |   |                                  |          |
|------------------------|---|----------------------------------|----------|
| Note: CARCINOMA        | TGLs = 1-10+10.1                                |                                  |          |
| Spleen                 |   | Hematopoietic Cell Proliferation | Moderate |
|                        | [ Hematopoietic Cell Proliferation TGLS = 7-3 ] |                                  |          |
| Stomach                |   |                                  |          |
|                        | Forestomach                                     | Acanthosis                       | Mild     |
|                        | Glandular                                       | Erosion                          | Minimal  |
|                        | Glandular                                       | Fibrosis                         | Mild     |
|                        | Glandular                                       | Hyperplasia                      | Mild     |
|                        | Glandular                                       | Metaplasia                       | Minimal  |
| Note: HYPERPLASIA      | TGLs = 13-7                                     |                                  |          |
| Note: ACANTHOSIS       | TGLs = 9-7                                      |                                  |          |
| Testes                 |   |                                  |          |
|                        | Bilateral, Interstit Cell                       | Adenoma                          |          |
|                        | Seminif Tub                                     | Atrophy                          | Mild     |
|                        | Interstit Cell                                  | Hyperplasia                      | Mild     |
| Note: ADENOMA          | TGLs = 5-6                                      |                                  |          |
| Thymus                 |   | Pigmentation                     | Minimal  |
| Thyroid Gland          |   |                                  |          |
|                        | C Cell  | Adenoma                          |          |
|                        | C Cell  | Carcinoma                        |          |
|                        | C Cell  | Hyperplasia                      | Mild     |
| Note: ADENOMA          | TGLs = 3-8                                      |                                  |          |
| PRIMARY CAUSE OF DEATH | -   |                                  |          |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 185

TRT#: 3

SEX: Male

DAY ON TEST: 318

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                         |                          |
|----------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                    | Bone Marrow              |
| Brain                      | Epididymis              | Esophagus               | Harderian Gland          |
| Heart                      | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Islets, Pancreatic      | Kidney                   |
| Mammary Gland              | Nose                    | Pancreas                | Parathyroid Gland        |
| Pituitary Gland            | Preputial Gland         | Prostate                | Salivary Glands          |
| Seminal Vesicle            | Skin                    | Spleen                  | Stomach - Glandular      |
| Thymus                     | Thyroid Gland           | Trachea                 |                          |

AUTO PRECLUDES DIAG.

Intestine Small - Jejunum

OBSERVATIONS

|   |                |                                 |                        |
|---|----------------|---------------------------------|------------------------|
| Eye   | Lens           | Cataract                        | Mild                   |
| Note: CATARACT                                    | TGLs = 1-10    |                                 |                        |
| Liver   |                | Basophilic Focus                |                        |
| Lung  |                | Congestion                      | Mild                   |
|   |                | Infiltration Cellular           | Histiocyte, Mild       |
|   |                | Inflammation                    | Granulomatous, Minimal |
|   |                | Pigmentation                    | Minimal                |
| Note: HEAVY MUCINOUS EXUDATE IN MANY BRONCHIOLES. |                |                                 |                        |
| Note: THICK FIBROUS CORE SUPPORT THE BRONCHIOLES. |                |                                 |                        |
| Lymph Node  | Mandibular     | Pigmentation                    | Minimal                |
|   | Mesenteric     | Pigmentation                    | Minimal                |
| Note: PIGMENT                                     | TGLs = 2-8     |                                 |                        |
| Stomach   | Forestomach    | Acanthosis                      | Minimal                |
| Testes  | Interstit Cell | Hyperplasia                     | Minimal                |
| Urinary Bladder                                   |                | Calculus Micro Observation Only |                        |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 187

TRT#: 3

SEX: Male

DAY ON TEST: 401

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Mammary Gland  
Preputial Gland  
Skin  
Trachea

Adrenal Gland - Medulla  
Epididymis  
Intestine Small - Ileum  
Pancreas  
Prostate  
Spleen  
Urinary Bladder

Bone  
Esophagus  
Islets, Pancreatic  
Parathyroid Gland  
Salivary Glands  
Stomach - Forestomach

Bone Marrow  
Heart  
Lymph Node - Mandibular  
Pituitary Gland  
Seminal Vesicle  
Thyroid Gland

MISSING

Nose Thymus

AUTO PRECLUDES DIAG.

Intestine Large - Cecum Intestine Large - Rectum Intestine Small - Duodenum Intestine Small - Jejunum

OBSERVATIONS

Kidney  
Note: CYST TGLs = 7-4

Liver

Lung

Note: HEMORRHAGE TGLs = 1-1

Note: MUCINOUS MATERIAL IN BRONCHIOLES

Lymph Node

Stomach

Testes

Mesenteric  
Glandular  
Glandular  
Interstit Cell

Cyst

Basophilic Focus  
Fatty Change  
Hemorrhage  
Infiltration Cellular

Infiltration Cellular  
Fibrosis  
Metaplasia  
Hyperplasia

Focal, Minimal  
Mild  
Histiocyte, Minimal

Histiocyte, Mild  
Minimal  
Minimal  
Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 189

TRT#: 3

SEX: Male

DAY ON TEST: 617

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                         |           |                         |
|-------------------------|-------------------------|-----------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone      | Bone Marrow             |
| Brain                   | Epididymis              | Esophagus | Intestine Large - Colon |
| Intestine Small - Ileum | Islets, Pancreatic      | Kidney    | Mammary Gland           |
| Pituitary Gland         | Preputial Gland         | Prostate  | Salivary Glands         |
| Seminal Vesicle         | Skin                    | Thymus    | Thyroid Gland           |
| Urinary Bladder         |                         |           |                         |

MISSING

|                         |                   |                     |  |
|-------------------------|-------------------|---------------------|--|
| Lymph Node - Mandibular | Parathyroid Gland | Stomach - Glandular |  |
|-------------------------|-------------------|---------------------|--|

AUTO PRECLUDES DIAG.

|                         |                          |                            |                           |
|-------------------------|--------------------------|----------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Jejunum |
|-------------------------|--------------------------|----------------------------|---------------------------|

OBSERVATIONS

|                                      |            |                                  |                      |
|--------------------------------------|------------|----------------------------------|----------------------|
| Heart                                |            | Cardiomyopathy                   | Mild                 |
| Liver                                |            | Basophilic Focus                 |                      |
|                                      |            | Fatty Change                     | Focal, Minimal       |
| Lung                                 |            | Edema                            | Mild                 |
|                                      |            | Infiltration Cellular            | Histiocyte, Minimal  |
|                                      |            | Inflammation                     | Acute, Marked        |
|                                      |            | Pigmentation                     | Mild                 |
| Note: INFLAMMATION TGLs = 2-1+2+2.1  |            |                                  |                      |
| Note: PIGMENT TGLs = 3-2+2.1         |            |                                  |                      |
| Note: MORE LIKE BRONCHOPNEUMONIA     |            |                                  |                      |
| Lymph Node                           | Mesenteric | Infiltration Cellular            | Histiocyte, Mild     |
|                                      | Pancreatic | Infiltration Cellular            | Histiocyte, Moderate |
|                                      | Mesenteric | Pigmentation                     | Mild                 |
| Note: INFILTRAT CELL TGLs = 6-9      |            |                                  |                      |
| Nose                                 |            | Inflammation                     | Acute, Mild          |
| Note: PLANT MATERIAL IN NASAL CAVITY |            |                                  |                      |
| Pancreas                             | Acinus     | Hyperplasia                      | Mild                 |
| Spleen                               |            | Depletion Lymphoid               | Mild                 |
|                                      |            | Hematopoietic Cell Proliferation | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                   |                         |
|-----------------------|------------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 189 | <b>TRT#:</b> 3               | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 617 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |                           |                       |                   |
|-------------------------------------|---------------------------|-----------------------|-------------------|
| Note: DEPLET LYMPH TGLs = 7-3       |                           | Infiltration Cellular | Histiocyte, Mild  |
| Stomach                             | Forestomach               | Acanthosis            | Mild              |
|                                     | Forestomach               | Hyperkeratosis        | Mild              |
| Note: [ HYPERKERATOSIS ] TGLs = 9-7 |                           |                       |                   |
| Testes                              | Bilateral, Interstit Cell | Adenoma               |                   |
|                                     | Interstit Cell            | Hyperplasia           | Mild              |
| Note: ADENOMA TGLs = 4-6            |                           |                       |                   |
| Trachea                             |                           | Metaplasia            | Squamous, Minimal |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 190 | <b>TRT#:</b> 3               | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 690 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Epididymis              | Esophagus                | Eye                     | Harderian Gland           |
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland            | Nose                    | Pancreas                  |
| Parathyroid Gland       | Preputial Gland          | Salivary Glands         | Seminal Vesicle           |
| Skin                    | Thyroid Gland            | Trachea                 |                           |

**OBSERVATIONS**

|                                |                |                       |                     |
|--------------------------------|----------------|-----------------------|---------------------|
| Bone Marrow                    |                | Pigmentation          | Minimal             |
| Heart                          |                | Cardiomyopathy        | Mild                |
|                                |                | Leukemia Mononuclear  |                     |
| Intestine Large                | Colon          | Parasite              | Minimal             |
| Note: PARASITE                 | TGLs = 11-7    |                       |                     |
| Intestine Small                | Duodenum       | Pigmentation          | Minimal             |
| Kidney                         |                | Leukemia Mononuclear  |                     |
|                                |                | Nephropathy           | Moderate            |
| Note: NEPHROPATHY              | TGLs = 8-4,9-4 |                       |                     |
| Note: MANY SCLEROSED GLOMERULI |                |                       |                     |
| Liver                          |                | Leukemia Mononuclear  |                     |
|                                |                | Pigmentation          | Minimal             |
| Lung                           |                | Atelectasis           | Mild                |
|                                |                | Infiltration Cellular | Histiocyte, Minimal |
|                                |                | Leukemia Mononuclear  |                     |
| Note: LEUKEMIA MONUC           | TGLs = 12-1.1  |                       |                     |
| Lymph Node                     | Mesenteric     | Infiltration Cellular | Histiocyte, Mild    |
|                                | Mandibular     | Leukemia Mononuclear  |                     |
|                                | Mediastinal    | Leukemia Mononuclear  |                     |
|                                | Mediastinal    | Pigmentation          | Minimal             |
|                                | Mesenteric     | Pigmentation          | Mild                |
| Note: LEUKEMIA MONUC           | TGLs = 4-13    |                       |                     |
| Note: LEUKEMIA MONUC           | TGLs = 3-9     |                       |                     |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 190

TRT#: 3

SEX: Male

DAY ON TEST: 690

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

|                                      |                           |                                  |                      |
|--------------------------------------|---------------------------|----------------------------------|----------------------|
| Mesentery                            | Fat                       | Hemorrhage                       | Moderate             |
|                                      | Fat                       | Necrosis                         | Mild                 |
| Note: HEMORRHAGE TGLs = 6-14         |                           |                                  |                      |
| Pituitary Gland                      | Pars Distalis             | Hyperplasia                      | Mild                 |
| Note: HYPERPLASIA TGLs = 10-8        |                           |                                  |                      |
| Prostate                             | Epithelium                | Hyperplasia                      | Mild                 |
| Spleen                               |                           | Fibrosis                         | Mild                 |
|                                      |                           | Hematopoietic Cell Proliferation | Mild                 |
|                                      |                           | Leukemia Mononuclear             |                      |
|                                      |                           | Pigmentation                     | Hemosiderin, Minimal |
| Note: LEUKEMIA MONUC TGLs = 7-3      |                           |                                  |                      |
| Stomach                              | Forestomach               | Acanthosis                       | Mild                 |
|                                      | Glandular                 | Erosion                          | Mild                 |
|                                      | Glandular                 | Fibrosis                         | Mild                 |
|                                      | Forestomach               | Hyperkeratosis                   | Mild                 |
|                                      | Glandular                 | Hyperplasia                      | Mild                 |
|                                      | Glandular                 | Metaplasia                       | Mild                 |
|                                      | Glandular                 | Pigmentation                     | Minimal              |
| Note: AREAS OF INTESTINAL METAPLASIA |                           |                                  |                      |
| Note: ACANTHOSIS TGLs = 14-7         |                           |                                  |                      |
| Testes                               | Bilateral, Interstit Cell | Adenoma                          |                      |
|                                      | Seminif Tub               | Atrophy                          | Mild                 |
|                                      | Interstit Cell            | Hyperplasia                      | Minimal              |
| Note: ADENOMA TGLs = 5-6             |                           |                                  |                      |
| Thymus                               |                           | Leukemia Mononuclear             |                      |
|                                      |                           | Pigmentation                     | Minimal              |
| Urinary Bladder                      |                           | Leukemia Mononuclear             |                      |
| PRIMARY CAUSE OF DEATH               | -                         |                                  |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 191 | <b>TRT#:</b> 3               | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 540 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Kidney                  |
| Nose                     | Pancreas                | Parathyroid Gland       | Pituitary Gland         |
| Prostate                 | Salivary Glands         | Seminal Vesicle         | Thymus                  |
| Trachea                  | Urinary Bladder         |                         |                         |

**MISSING**

|                         |               |                 |      |
|-------------------------|---------------|-----------------|------|
| Lymph Node - Mandibular | Mammary Gland | Preputial Gland | Skin |
|-------------------------|---------------|-----------------|------|

**OBSERVATIONS**

|   |             |                                  |                   |
|---|-------------|----------------------------------|-------------------|
| Bone Marrow   |             | Pigmentation                     | Minimal           |
| Heart   |             | Cardiomyopathy                   | Mild              |
| Intestine Small   | Duodenum    | Pigmentation                     | Minimal           |
|   | Jejunum     | Pigmentation                     | Minimal           |
| Liver   |             | Basophilic Focus                 |                   |
|   |             | Clear Cell Focus                 |                   |
|   |             | Fatty Change                     | Focal, Mild       |
|   | Bile Duct   | Hyperplasia                      | Mild              |
|   |             | Pigmentation                     | Minimal           |
| Note: PIGMENT STAINS BRICK RED WITH PAS<br>Note: PIGMENT IN PORTAL RADICLES |             |                                  |                   |
| Lung  |             | Pigmentation                     | Mild              |
| Note: PIGMENT TGLs = 3-1+2  |             |                                  |                   |
| Lymph Node  | Mediastinal | Infiltration Cellular            | Histiocyte, Mild  |
|   | Mesenteric  | Infiltration Cellular            | Histiocyte, Mild  |
|   | Mesenteric  | Infiltration Cellular            | Mast Cell, Mild   |
|   | Mediastinal | Pigmentation                     | Minimal           |
|   | Mesenteric  | Pigmentation                     | Minimal           |
| Spleen  |             | Hematopoietic Cell Proliferation | Mild              |
|   |             | Infiltration Cellular            | Histiocyte, Mild  |
|   |             | Pigmentation                     | Hemosiderin, Mild |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 191 | <b>TRT#:</b> 3               | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 540 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                      |                           |                |          |
|--------------------------------------|---------------------------|----------------|----------|
| Stomach                              | Forestomach               | Pigmentation   | Mild     |
|                                      | Glandular                 | Acanthosis     | Mild     |
|                                      | Forestomach               | Fibrosis       | Mild     |
|                                      | Glandular                 | Hyperkeratosis | Mild     |
|                                      | Glandular                 | Hyperplasia    | Mild     |
|                                      | Glandular                 | Metaplasia     | Mild     |
|                                      | Glandular                 | Pigmentation   | Minimal  |
| Note: AREAS OF INTESTINAL METAPLASIA |                           |                |          |
| Note: HYPERPLASIA TGLs = 6-7         |                           |                |          |
| Testes                               | Bilateral, Interstit Cell | Adenoma        |          |
|                                      | Seminif Tub               | Atrophy        | Moderate |
|                                      | Interstit Cell            | Hyperplasia    | Mild     |
| [ Atrophy TGLS = 4-6 ]               |                           |                |          |
| Thyroid Gland                        | C Cell                    | Hyperplasia    | Minimal  |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 192

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 675

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                         |                          |
|---------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                    | Brain                    |
| Esophagus                 | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Parathyroid Gland       | Preputial Gland          |
| Prostate                  | Salivary Glands         | Seminal Vesicle         | Stomach - Forestomach    |
| Trachea                   |                         |                         |                          |

**MISSING**

|               |      |                 |        |
|---------------|------|-----------------|--------|
| Mammary Gland | Nose | Pituitary Gland | Thymus |
|---------------|------|-----------------|--------|

**OBSERVATIONS**

|                                 |              |                        |                      |
|---------------------------------|--------------|------------------------|----------------------|
| Bone Marrow                     |              | Pigmentation           | Minimal              |
| Epididymis                      |              | Mesothelioma Malignant |                      |
| Note: MESOTHELIO MAL TGLs = 5-6 |              |                        |                      |
| Esophagus                       |              |                        |                      |
| Note: BLOOD IN ESOPHAGUS        |              |                        |                      |
| Heart                           |              | Cardiomyopathy         | Mild                 |
| Intestine Small                 | Ileum        | Mesothelioma Malignant |                      |
|                                 | Duodenum     | Pigmentation           | Minimal              |
| Kidney                          |              | Nephropathy            | Minimal              |
|                                 | Renal Tubule | Pigmentation           | Mild                 |
| Liver                           |              | Basophilic Focus       |                      |
|                                 |              | Degeneration           | Cystic, Mild         |
|                                 |              | Leukemia Mononuclear   |                      |
|                                 |              | Necrosis               | Minimal              |
|                                 |              | Pigmentation           | Minimal              |
| Lung                            |              | Atelectasis            | Minimal              |
|                                 |              | Infiltration Cellular  | Histiocyte, Minimal  |
|                                 |              | Leukemia Mononuclear   |                      |
| Lymph Node                      | Mandibular   | Infiltration Cellular  | Histiocyte, Mild     |
|                                 | Mediastinal  | Infiltration Cellular  | Histiocyte, Moderate |
|                                 | Mesenteric   | Infiltration Cellular  | Histiocyte, Mild     |
|                                 | Mediastinal  | Pigmentation           | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 192      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 675  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                  |                |                        |                      |
|----------------------------------|----------------|------------------------|----------------------|
|                                  | Mesenteric     | Pigmentation           | Mild                 |
| Note: INFILTRAT CELL TGLs = 2-13 |                |                        |                      |
| Mesentery                        |                | Mesothelioma Malignant |                      |
| Note: MESOTHELIO MAL TGLs = 9-6  |                |                        |                      |
| Pancreas                         |                | Mesothelioma Malignant |                      |
| Note: MESOTHELIO MAL TGLs = 7-9  |                |                        |                      |
| Skin                             | Subcut Tiss    | Fibroma                |                      |
| [ Fibroma TGLS = 1-14 ]          |                |                        |                      |
| Spleen                           |                | Leukemia Mononuclear   |                      |
|                                  |                | Pigmentation           | Hemosiderin, Minimal |
|                                  |                | Pigmentation           | Minimal              |
| Note: LEUKEMIA MONUC TGLs = 8-3  |                |                        |                      |
| Stomach                          | Glandular      | Fibrosis               | Mild                 |
|                                  | Glandular      | Metaplasia             | Mild                 |
| Testes                           | Interstit Cell | Adenoma                |                      |
|                                  | Seminif Tub    | Atrophy                | Marked               |
|                                  | Interstit Cell | Hyperplasia            | Minimal              |
|                                  |                | Mesothelioma Malignant |                      |
| Note: MESOTHELIO MAL TGLs = 6-6  |                |                        |                      |
| Thyroid Gland                    | C Cell         | Hyperplasia            | Minimal              |
| Urinary Bladder                  |                | Mesothelioma Malignant |                      |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 193

TRT#: 3

SEX: Male

DAY ON TEST: 515

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Kidney  
Pancreas  
Salivary Glands  
Thymus

Adrenal Gland - Medulla  
Epididymis  
Lymph Node - Mandibular  
Parathyroid Gland  
Seminal Vesicle  
Thyroid Gland

Bone  
Esophagus  
Mammary Gland  
Preputial Gland  
Skin  
Trachea

Bone Marrow  
Islets, Pancreatic  
Nose  
Prostate  
Spleen

**MISSING**

Intestine Small - Duodenum

**AUTO PRECLUDES DIAG.**

Intestine Large - Cecum  
Intestine Small - Jejunum

Intestine Large - Colon  
Lymph Node - Mesenteric

Intestine Large - Rectum  
Stomach - Forestomach

Intestine Small - Ileum  
Urinary Bladder

**OBSERVATIONS**

Heart  
Liver  
Lung  
Note: PIGMENT TGLs = 2-1+2  
Pituitary Gland  
Stomach  
Testes

Pars Distalis  
Glandular  
Bilateral, Interstit Cell

Cardiomyopathy  
Basophilic Focus  
Pigmentation  
Adenoma  
Fibrosis  
Adenoma

Mild  
Mild  
Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 194

TRT#: 3

SEX: Male

DAY ON TEST: 612

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Epididymis               | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Pancreas                   | Parathyroid Gland       | Pituitary Gland           |
| Preputial Gland          | Salivary Glands            | Seminal Vesicle         | Skin                      |
| Spleen                   | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Trachea                  | Urinary Bladder            |                         |                           |

**MISSING**

|               |      |
|---------------|------|
| Mammary Gland | Nose |
|---------------|------|

**AUTO PRECLUDES DIAG.**

Thyroid Gland

**OBSERVATIONS**

|                                     |              |                          |                      |
|-------------------------------------|--------------|--------------------------|----------------------|
| Adrenal Gland                       | Medulla      | Hyperplasia              | Minimal              |
| Heart                               |              | Cardiomyopathy           | Mild                 |
| Kidney                              | Papilla      | Mineralization           | Minimal              |
|                                     |              | Nephropathy              | Mild                 |
|                                     | Renal Tubule | Pigmentation             | Minimal              |
| Liver                               |              | Basophilic Focus         |                      |
|                                     |              | Hepatocellular Carcinoma |                      |
| Note: HEPATOCLR CARC TGLs = 7-3+3.1 |              |                          |                      |
| Lung                                |              | Edema                    | Mild                 |
|                                     |              | Infiltration Cellular    | Histiocyte, Mild     |
|                                     |              | Inflammation             | Acute, Moderate      |
|                                     |              | Pigmentation             | Cholesterol, Minimal |
|                                     |              | Pigmentation             | Minimal              |
| Note: INFLAMMATION TGLs = 2-1+2     |              |                          |                      |
| Note: MORE LIKE BRONCHOPNEUMONIA    |              |                          |                      |
| Lymph Node                          | Mandibular   | Infiltration Cellular    | Histiocyte, Mild     |
|                                     | Mediastinal  | Infiltration Cellular    | Histiocyte, Minimal  |
|                                     | Mesenteric   | Infiltration Cellular    | Histiocyte, Minimal  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 194

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 612

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|          |                           |              |         |
|----------|---------------------------|--------------|---------|
| Prostate | Mandibular                | Pigmentation | Minimal |
| Testes   | Mediastinal               | Pigmentation | Minimal |
|          | Epithelium                | Hyperplasia  | Minimal |
|          | Bilateral, Interstit Cell | Adenoma      |         |
|          | Seminif Tub               | Atrophy      | Mild    |
|          | Interstit Cell            | Hyperplasia  | Mild    |
|          |                           | Infarct      | Marked  |

Note: ADENOMA TGLs = 5-6

Note: INFARCT TGLs = 4-6.1

PRIMARY CAUSE OF DEATH

-

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:27  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 196

TRT#: 3

SEX: Male

DAY ON TEST: 738

DOSE: 0.05 G/KG 79 HM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                    |
|-------------------------|--------------------------|-------------------------|--------------------|
| Adrenal Gland - Cortex  | Bone                     | Brain                   | Epididymis         |
| Esophagus               | Eye                      | Harderian Gland         | Heart              |
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic |
| Pancreas                | Parathyroid Gland        | Preputial Gland         | Prostate           |
| Salivary Glands         | Seminal Vesicle          | Skin                    | Thymus             |
| Trachea                 | Urinary Bladder          |                         |                    |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                     |              |                         |                        |
|-------------------------------------|--------------|-------------------------|------------------------|
| Adrenal Gland                       | Medulla      | Hyperplasia             | Minimal                |
|                                     | Medulla      | Pheochromocytoma Benign |                        |
| Note: PHEOCHROM BGN TGLs = 4-8      |              |                         |                        |
| Bone Marrow                         |              | Pigmentation            | Minimal                |
| Intestine Large                     | Colon        | Parasite                | Mild                   |
| Intestine Small                     | Duodenum     | Pigmentation            | Minimal                |
|                                     | Jejunum      | Pigmentation            | Minimal                |
| Kidney                              |              | Nephropathy             | Mild                   |
|                                     | Renal Tubule | Pigmentation            | Minimal                |
| Liver                               |              | Basophilic Focus        |                        |
|                                     |              | Clear Cell Focus        |                        |
|                                     | Bile Duct    | Hyperplasia             | Mild                   |
|                                     |              | Inflammation            | Granulomatous, Minimal |
|                                     |              | Mixed Cell Focus        |                        |
|                                     |              | Pigmentation            | Mild                   |
| Note: [ MIXED CL FOCUS ] TGLs = 5-3 |              |                         |                        |
| Lung                                |              | Infiltration Cellular   | Histiocyte, Mild       |
|                                     |              | Pigmentation            | Minimal                |
| Note: INFILTRAT CELL TGLs = 2-1+2   |              |                         |                        |
| Lymph Node                          | Mandibular   | Infiltration Cellular   | Histiocyte, Minimal    |
|                                     | Mediastinal  | Infiltration Cellular   | Histiocyte, Minimal    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 196      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 738  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                               |                           |                                  |                      |
|-------------------------------|---------------------------|----------------------------------|----------------------|
|                               | Mesenteric                | Infiltration Cellular            | Histiocyte, Moderate |
|                               | Mesenteric                | Pigmentation                     | Mild                 |
| Nose                          |                           | Fungus                           | Mild                 |
|                               |                           | Inflammation                     | Acute, Mild          |
| Pituitary Gland               | Pars Distalis             | Hyperplasia                      | Mild                 |
| Spleen                        |                           | Hematopoietic Cell Proliferation | Mild                 |
|                               |                           | Infiltration Cellular            | Histiocyte, Mild     |
|                               |                           | Pigmentation                     | Mild                 |
|                               |                           | Pigmentation                     | Hemosiderin, Mild    |
| Stomach                       | Forestomach               | Acanthosis                       | Minimal              |
|                               | Glandular                 | Fibrosis                         | Minimal              |
|                               | Glandular                 | Hyperplasia                      | Minimal              |
|                               | Glandular                 | Metaplasia                       | Minimal              |
|                               | Glandular                 | Pigmentation                     | Minimal              |
|                               | Fat                       | Proliferation                    | Minimal              |
| Testes                        | Bilateral, Interstit Cell | Adenoma                          |                      |
|                               | Seminif Tub               | Atrophy                          | Mild                 |
|                               | Interstit Cell            | Hyperplasia                      | Minimal              |
| Note: ADENOMA      TGLs = 3-6 |                           |                                  |                      |
| Thyroid Gland                 | C Cell                    | Hyperplasia                      | Minimal              |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 197

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 722

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                         |                          |
|----------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Brain                   | Epididymis               |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Islets, Pancreatic      | Lymph Node - Mandibular  |
| Nose                       | Pancreas                | Parathyroid Gland       | Pituitary Gland          |
| Preputial Gland            | Salivary Glands         | Seminal Vesicle         | Skin                     |
| Stomach - Forestomach      | Thymus                  | Trachea                 | Urinary Bladder          |

**MISSING**

|                           |               |
|---------------------------|---------------|
| Intestine Small - Jejunum | Mammary Gland |
|---------------------------|---------------|

**OBSERVATIONS**

|   |             |                       |                        |
|---|-------------|-----------------------|------------------------|
| Adrenal Gland                           | Medulla     | Hyperplasia           | Mild                   |
| Bone Marrow                             |             | Pigmentation          | Minimal                |
| Heart                                   |             | Cardiomyopathy        | Mild                   |
| Kidney                                  |             | Nephropathy           | Mild                   |
| Liver                                   |             | Basophilic Focus      |                        |
|   |             | Eosinophilic Focus    |                        |
|   | Bile Duct   | Hyperplasia           | Mild                   |
|   |             | Leukemia Mononuclear  |                        |
|   |             | Pigmentation          | Minimal                |
| Lung                                    |             | Atelectasis           | Moderate               |
|   |             | Infiltration Cellular | Histiocyte, Mild       |
|   |             | Inflammation          | Granulomatous, Minimal |
|   |             | Pigmentation          | Moderate               |
| Note: INFILTRAT CELL TGLs = 4-1+2       |             |                       |                        |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES. |             |                       |                        |
| Lymph Node                              | Mediastinal | Angiectasis           | Mild                   |
|   | Mediastinal | Infiltration Cellular | Histiocyte, Mild       |
|   | Mesenteric  | Infiltration Cellular | Histiocyte, Mild       |
|   | Pancreatic  | Infiltration Cellular | Histiocyte, Mild       |
|   | Mediastinal | Pigmentation          | Mild                   |
|   | Mesenteric  | Pigmentation          | Mild                   |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                   |                         |
|-----------------------|------------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 197 | <b>TRT#:</b> 3               | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 722 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: ANGIECTASIS TGLs = 2-2

Note: HYPERPLASTIC LYMPH FOLLICLES IN MANDIBULAR LN

|          |            |                       |                   |
|----------|------------|-----------------------|-------------------|
| Prostate | Epithelium | Hyperplasia           | Mild              |
| Spleen   |            | Hemorrhage            | Moderate          |
|          |            | Infiltration Cellular | Histiocyte, Mild  |
|          |            | Leukemia Mononuclear  |                   |
|          |            | Pigmentation          | Hemosiderin, Mild |
|          |            | Pigmentation          | Mild              |

Note: HEMORRHAGE TGLs = 6-3.1

Note: MUCH OF THE TISSUE AUTOLYZED

|         |                           |             |         |
|---------|---------------------------|-------------|---------|
| Stomach | Glandular                 | Erosion     | Minimal |
| Testes  | Bilateral, Interstit Cell | Adenoma     |         |
|         | Seminif Tub               | Atrophy     | Mild    |
|         | Interstit Cell            | Hyperplasia | Minimal |

Note: ADENOMA TGLs = 5-6

|               |        |         |  |
|---------------|--------|---------|--|
| Thyroid Gland | C Cell | Adenoma |  |
|---------------|--------|---------|--|

Note: ADENOMA TGLs = 3-8

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 198

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 261

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                    | Bone Marrow              |
| Brain                   | Epididymis                | Esophagus               | Eye                      |
| Heart                   | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular  |
| Mammary Gland           | Nose                      | Pancreas                | Parathyroid Gland        |
| Pituitary Gland         | Preputial Gland           | Prostate                | Salivary Glands          |
| Seminal Vesicle         | Skin                      | Testes                  | Thyroid Gland            |
| Trachea                 | Urinary Bladder           |                         |                          |

**MISSING**

Thymus

**OBSERVATIONS**

|                 |          |                       |                        |
|-----------------|----------|-----------------------|------------------------|
| Intestine Small | Duodenum | Pigmentation          | Minimal                |
| Kidney          | Cortex   | Mineralization        | Mild                   |
| Liver           |          | Fatty Change          | Focal, Minimal         |
| Lung            |          | Atelectasis           | Mild                   |
|                 |          | Infiltration Cellular | Histiocyte, Mild       |
|                 |          | Inflammation          | Granulomatous, Minimal |
|                 |          | Pigmentation          | Mild                   |

Note: MATERIAL, TALL EPITHELIUM, AND NEUTROPHILS.  
 Note: MARKEDLY DISTENDED BRONCHIOLES WITH MUCINOUS  
 Note: INFILTRAT CELL TGLs = 2-1+2  
 [ Infiltration Cellular TGLS = 3-2 ]

|            |             |                                  |                         |
|------------|-------------|----------------------------------|-------------------------|
| Lymph Node | Mesenteric  | Pigmentation                     | Mild                    |
| Spleen     |             | Hematopoietic Cell Proliferation | Mild                    |
|            |             | Pigmentation                     | Hemosiderin, Mild       |
| Stomach    | Glandular   | Erosion                          | Minimal                 |
|            | Forestomach | Inflammation                     | Chronic Active, Minimal |
|            | Glandular   | Inflammation                     | Acute, Mild             |
|            | Glandular   | Metaplasia                       | Minimal                 |
|            | Forestomach | Necrosis                         | Minimal                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 198

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 261

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 199

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular  |
| Parathyroid Gland       | Preputial Gland           | Salivary Glands         | Seminal Vesicle          |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular     | Thyroid Gland            |
| Trachea                 | Urinary Bladder           |                         |                          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                      |                    |                              |                      |
|----------------------|--------------------|------------------------------|----------------------|
| Adrenal Gland        | Bilateral, Medulla | Pheochromocytoma Benign      |                      |
| Bone Marrow          |                    | Pigmentation                 | Minimal              |
| Heart                |                    | Cardiomyopathy               | Mild                 |
| Intestine Small      | Duodenum           | Pigmentation                 | Minimal              |
| Kidney               |                    | Nephropathy                  | Mild                 |
|                      | Renal Tubule       | Pigmentation                 | Minimal              |
| Liver                |                    | Basophilic Focus             |                      |
|                      |                    | Clear Cell Focus             |                      |
|                      |                    | Fatty Change                 | Focal, Minimal       |
|                      |                    | Pigmentation                 | Mild                 |
| Note: CLEAR CL FOCUS | TGLs = 6-3         |                              |                      |
| Note: BASOPH FOCUS   | TGLs = 6-3         |                              |                      |
| Lung                 |                    | Alveolar/Bronchiolar Adenoma |                      |
|                      | Alveolar Epith     | Hyperplasia                  | Mild                 |
|                      |                    | Infiltration Cellular        | Histiocyte, Mild     |
|                      |                    | Pigmentation                 | Mild                 |
|                      |                    | Pigmentation                 | Cholesterol, Minimal |
| Note: PIGMENT        | TGLs = 2-1+2       |                              |                      |
| Note: ALV BRON ADEN  | TGLs = 3-1         |                              |                      |
| Lymph Node           | Mesenteric         | Infiltration Cellular        | Histiocyte, Moderate |
|                      | Mesenteric         | Pigmentation                 | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 199

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                           |                                  |                     |
|--|---------------------------|----------------------------------|---------------------|
| Note: INFILTRAT CELL TGLs = 5-8                          |                           |                                  |                     |
| Nose   |                           | Fungus<br>Inflammation           | Mild<br>Acute, Mild |
| Pancreas   | Acinus                    | Hyperplasia                      | Mild                |
| Pituitary Gland  | Pars Distalis             | Angiectasis                      | Mild                |
|  | Pars Intermed             | Cyst                             |                     |
|  | Pars Distalis             | Hyperplasia                      | Mild                |
| Prostate   | Epithelium                | Hyperplasia                      | Minimal             |
| Spleen   |                           | Hematopoietic Cell Proliferation | Mild                |
|  |                           | Infiltration Cellular            | Histiocyte, Minimal |
|  |                           | Pigmentation                     | Minimal             |
|  |                           | Pigmentation                     | Hemosiderin, Mild   |
| Testes   | Bilateral, Interstit Cell | Adenoma                          |                     |
|  | Seminif Tub               | Atrophy                          | Mild                |
| Note: ADENOMA TGLs = 4-6                                 |                           |                                  |                     |
| Thymus   |                           | Depletion Lymphoid               | Mild                |
|  |                           | Pigmentation                     | Minimal             |
| Zymbal's Gland   |                           | Carcinoma                        |                     |
| Note: SQUAMOUS CELL CA<br>[ Carcinoma TGLS = 1-13+13.1 ] |                           |                                  |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 200

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 586

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Lymph Node - Mandibular | Mammary Gland             | Nose                     | Parathyroid Gland          |
| Salivary Glands         | Seminal Vesicle           | Skin                     | Thyroid Gland              |
| Trachea                 | Urinary Bladder           |                          |                            |

**MISSING**

Preputial Gland

**OBSERVATIONS**

|                 |                |                       |                     |
|-----------------|----------------|-----------------------|---------------------|
| Liver           |                | Basophilic Focus      |                     |
|                 |                | Fatty Change          | Focal, Minimal      |
|                 |                | Pigmentation          | Minimal             |
| Lung            | Alveolar Epith | Hyperplasia           | Mild                |
|                 |                | Infiltration Cellular | Histiocyte, Minimal |
|                 |                | Pigmentation          | Mild                |
| Note: PIGMENT   | TGLs = 1-1+2   |                       |                     |
| Lymph Node      | Mediastinal    | Infiltration Cellular | Histiocyte, Mild    |
|                 | Mesenteric     | Infiltration Cellular | Histiocyte, Mild    |
|                 | Mesenteric     | Pigmentation          | Mild                |
| Pancreas        | Acinus         | Hyperplasia           | Mild                |
| Pituitary Gland | Pars Distalis  | Hyperplasia           | Mild                |
| Prostate        | Epithelium     | Hyperplasia           | Minimal             |
| Spleen          |                | Infiltration Cellular | Histiocyte, Minimal |
| Stomach         | Forestomach    | Acanthosis            | Mild                |
|                 | Glandular      | Erosion               | Minimal             |
|                 | Glandular      | Fibrosis              | Mild                |
|                 | Forestomach    | Hyperkeratosis        | Mild                |
|                 | Glandular      | Hyperplasia           | Mild                |
|                 | Glandular      | Inflammation          | Acute, Mild         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                   |                         |
|-----------------------|------------------------------|-------------------|-------------------------|
| <b>ANIMAL ID:</b> 200 | <b>TRT#:</b> 3               | <b>SEX:</b> Male  | <b>DAY ON TEST:</b> 586 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Dead | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

|  |                           |                           |         |
|--|---------------------------|---------------------------|---------|
|  | Glandular                 | Metaplasia                | Minimal |
|  | Fat                       | Proliferation             | Minimal |
| Note: HYPERPLASIA TGLs = 4-7<br>Note: AREAS OF INTESTINAL METAPLASIA |                           |                           |         |
| Testes   | Bilateral, Interstit Cell | Adenoma                   |         |
| Note: ADENOMA TGLs = 2-6   |                           |                           |         |
| Thymus   |                           | Ectopic Parathyroid Gland | Mild    |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE





**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:27

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 201

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 618

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: ADENOMA      TGLs = 3-6

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 202

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 709

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                         |                          |
|-------------------------|-------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                    | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Islets, Pancreatic      | Mammary Gland           | Nose                     |
| Pancreas                | Parathyroid Gland       | Preputial Gland         | Prostate                 |
| Salivary Glands         | Seminal Vesicle         | Skin                    | Stomach - Forestomach    |
| Thyroid Gland           | Trachea                 | Urinary Bladder         |                          |

**OBSERVATIONS**

|   |                    |                         |                        |
|---|--------------------|-------------------------|------------------------|
| Adrenal Gland                             | Bilateral, Medulla | Pheochromocytoma Benign |                        |
| Note: [ PHEOCHROM BGN ] TGLs = 6,7-8      |                    |                         |                        |
| Bone Marrow                               |                    | Pigmentation            | Minimal                |
| Heart                                     |                    | Cardiomyopathy          | Mild                   |
|   |                    | Leukemia Mononuclear    |                        |
| Intestine Small                           | Duodenum           | Pigmentation            | Minimal                |
|   | Jejunum            | Pigmentation            | Minimal                |
| Kidney                                    |                    | Leukemia Mononuclear    |                        |
|   |                    | Nephropathy             | Minimal                |
| Liver                                     |                    | Fatty Change            | Focal, Minimal         |
|   |                    | Hepatocellular Adenoma  |                        |
|   | Bile Duct          | Hyperplasia             | Mild                   |
|   |                    | Leukemia Mononuclear    |                        |
|   |                    | Pigmentation            | Minimal                |
| Note: [ HEPATOCLR ADEN ] TGLs = 9-3       |                    |                         |                        |
| Note: LEUKEMIA MONUC TGLs = 10-3          |                    |                         |                        |
| Note: PROBABLY A HEPATOCELLULAR CARCINOMA |                    |                         |                        |
| Lung                                      |                    | Hemorrhage              | Mild                   |
|   |                    | Infiltration Cellular   | Histiocyte, Mild       |
|   |                    | Inflammation            | Granulomatous, Minimal |
|   |                    | Leukemia Mononuclear    |                        |
|   |                    | Pigmentation            | Mild                   |
| Note: INFILTRAT CELL TGLs = 2-1+2         |                    |                         |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 202      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 709  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                           |                       |                     |
|--|---------------------------|-----------------------|---------------------|
| Note: LEUKEMIA MONUC                   | TGLs = 3-1+2              |                       |                     |
| Lymph Node                             | Mediastinal               | Infiltration Cellular | Histiocyte, Minimal |
|  | Mesenteric                | Infiltration Cellular | Histiocyte, Mild    |
|  | Mandibular                | Leukemia Mononuclear  |                     |
|  | Mediastinal               | Leukemia Mononuclear  |                     |
|  | Mesenteric                | Leukemia Mononuclear  |                     |
|  | Pancreatic                | Leukemia Mononuclear  |                     |
|  | Mesenteric                | Pigmentation          | Minimal             |
| Note: LEUKEMIA MONUC                   | TGLs = 8-8                |                       |                     |
| Pituitary Gland                        | Pars Distalis             | Angiectasis           | Mild                |
|  | Pars Distalis             | Hyperplasia           | Mild                |
| Note: HYPERPLASIA                      | TGLs = 11-8               |                       |                     |
| Spleen                                 |                           | Infiltration Cellular | Histiocyte, Minimal |
|  |                           | Leukemia Mononuclear  |                     |
|  |                           | Pigmentation          | Minimal             |
| [ Infiltration Cellular TGLS = 5-3.1 ] |                           |                       |                     |
| Stomach                                | Glandular                 | Erosion               | Minimal             |
|  | Glandular                 | Fibrosis              | Minimal             |
|  | Glandular                 | Hyperplasia           | Minimal             |
|  | Glandular                 | Inflammation          | Acute, Mild         |
|  | Glandular                 | Metaplasia            | Minimal             |
|  | Glandular                 | Pigmentation          | Minimal             |
| Testes                                 | Bilateral, Interstit Cell | Adenoma               |                     |
|  | Seminif Tub               | Atrophy               | Mild                |
|  | Interstit Cell            | Hyperplasia           | Mild                |
| Thymus                                 |                           | Depletion Lymphoid    | Mild                |
|  |                           | Pigmentation          | Mild                |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 203

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 514

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Epididymis                | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lymph Node - Mandibular |
| Mammary Gland             | Pancreas                 | Parathyroid Gland          | Preputial Gland         |
| Prostate                  | Salivary Glands          | Seminal Vesicle            | Skin                    |
| Stomach - Forestomach     | Stomach - Glandular      | Testes                     | Thymus                  |
| Trachea                   | Urinary Bladder          |                            |                         |

**OBSERVATIONS**

|  |               |                                  |                     |
|--|---------------|----------------------------------|---------------------|
| Adrenal Gland  | Medulla       | Hyperplasia                      | Mild                |
| Liver  |               | Hemorrhage                       | Marked              |
| Note: HEMORRHAGE TGLs = 6-3                            |               |                                  |                     |
| Lung   |               | Inflammation                     | Acute, Moderate     |
| Note: RED MATERIAL IN AREAS OF INFLAMMATION IN BRAUN & |               |                                  |                     |
| Note: INFLAMMATION TGLs = 3-1+2                        |               |                                  |                     |
| Note: BRENN STAINED SECTIONS.                          |               |                                  |                     |
| Lymph Node   | Mesenteric    | Infiltration Cellular            | Histiocyte, Minimal |
| Nose   |               | Inflammation                     | Acute, Marked       |
| Pituitary Gland  | Pars Distalis | Adenoma                          |                     |
|  | Pars Distalis | Angiectasis                      | Mild                |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild                |
|  |               | Infiltration Cellular            | Histiocyte, Mild    |
| Thyroid Gland  | C Cell        | Hyperplasia                      | Minimal             |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 204

TRT#: 3

SEX: Male

DAY ON TEST: 711

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Intestine Small - Ileum  
Pancreas  
Salivary Glands  
Trachea

Bone  
Islets, Pancreatic  
Parathyroid Gland  
Seminal Vesicle

Epididymis  
Mammary Gland  
Preputial Gland  
Skin

Esophagus  
Nose  
Prostate  
Thyroid Gland

MISSING

Thymus

AUTO PRECLUDES DIAG.

Intestine Large - Cecum  
Intestine Small - Jejunum

Intestine Large - Colon  
Spleen

Intestine Large - Rectum  
Urinary Bladder

Intestine Small - Duodenum

OBSERVATIONS

Adrenal Gland  
Note: PHEOCHROM BGN TGLs = 5-8

Medulla

Pheochromocytoma Benign

Bone Marrow  
Brain

Pigmentation  
Bacterium  
Leukemia Mononuclear  
Bacterium  
Cardiomyopathy  
Leukemia Mononuclear

Mild  
Mild

Heart

Abscess  
Bacterium  
Leukemia Mononuclear

Moderate  
Mild

Note: SUGGESTIVE OF VEGETATIVE VALVULITIS  
Note: BACTERIAL COLONIES IN BLOOD VESSELS AND

Kidney

Note: ABSCESS TGLs = 7-4  
Note: MULTIPLE MICROABSCESSSES

Liver

Fatty Change  
Leukemia Mononuclear  
Pigmentation

Focal, Mild  
Minimal

Note: SECTION CIRCLED IN INK IS NOT CONVINCING FOR

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 204

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 711

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: NEOPLASTIC NODULE.

|      |  |                       |                  |
|------|--|-----------------------|------------------|
| Lung |  | Infiltration Cellular | Histiocyte, Mild |
|      |  | Leukemia Mononuclear  |                  |
|      |  | Pigmentation          | Minimal          |

Note: LEUKEMIA MONUC TGLs = 3-1+2

Note: ABUNDANT MUCINOUS MATERIAL IN BRONCHIOLES (#2).

|            |             |                       |                  |
|------------|-------------|-----------------------|------------------|
| Lymph Node | Mandibular  | Bacterium             | Minimal          |
|            | Mesenteric  | Bacterium             | Minimal          |
|            | Mesenteric  | Infiltration Cellular | Histiocyte, Mild |
|            | Mandibular  | Leukemia Mononuclear  |                  |
|            | Mediastinal | Leukemia Mononuclear  |                  |
|            | Mesenteric  | Leukemia Mononuclear  |                  |
|            | Pancreatic  | Leukemia Mononuclear  |                  |
|            | Mesenteric  | Pigmentation          | Minimal          |

Note: LEUKEMIA MONUC TGLs = 1-9,2-2,6-8,10-9

|                 |               |             |          |
|-----------------|---------------|-------------|----------|
| Pituitary Gland | Pars Distalis | Angiectasis | Moderate |
|-----------------|---------------|-------------|----------|

Note: ANGIECTASIS TGLs = 8-8

|         |             |                |          |
|---------|-------------|----------------|----------|
| Stomach | Forestomach | Acanthosis     | Mild     |
|         | Glandular   | Fibrosis       | Mild     |
|         | Forestomach | Hyperkeratosis | Moderate |

Note: PROBABLY A PAPILLOMA WITH THE STOCK CUTOFF

Note: HYPERKERATOSIS TGLs = 12-7

|        |                           |                      |  |
|--------|---------------------------|----------------------|--|
| Testes | Bilateral, Interstit Cell | Adenoma              |  |
|        |                           | Leukemia Mononuclear |  |

PRIMARY CAUSE OF DEATH

-

Animal Note: BACTERIAL COLONIES IN MANY ORGANS

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 205

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Nose                    |
| Parathyroid Gland        | Pituitary Gland         | Preputial Gland         | Prostate                |
| Salivary Glands          | Seminal Vesicle         | Skin                    | Trachea                 |
| Urinary Bladder          |                         |                         |                         |

**MISSING**

|               |        |
|---------------|--------|
| Mammary Gland | Thymus |
|---------------|--------|

**OBSERVATIONS**

|   |              |                       |                        |
|---|--------------|-----------------------|------------------------|
| Bone Marrow                                     |              | Pigmentation          | Minimal                |
| Heart   |              | Cardiomyopathy        | Mild                   |
| Intestine Small                                 | Duodenum     | Pigmentation          | Minimal                |
|   | Jejunum      | Pigmentation          | Minimal                |
| Kidney  |              | Nephropathy           | Minimal                |
|   | Renal Tubule | Pigmentation          | Minimal                |
| Liver   |              | Basophilic Focus      |                        |
|   |              | Degeneration          | Cystic, Mild           |
|   |              | Eosinophilic Focus    |                        |
|   |              | Inflammation          | Granulomatous, Minimal |
|   |              | Pigmentation          | Minimal                |
| Note: [ BASOPH FOCUS ] TGLs = 1,2-3+3.1         |              |                       |                        |
| Lung  |              | Infiltration Cellular | Histiocyte, Mild       |
|   |              | Pigmentation          | Mild                   |
| Note: BRONCHIAL EPITHELIUM                      |              |                       |                        |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES AND TALL |              |                       |                        |
| Note: INFILTRAT CELL TGLs = 6-1+2               |              |                       |                        |
| Lymph Node                                      | Mandibular   | Infiltration Cellular | Histiocyte, Mild       |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Moderate   |
|   | Mandibular   | Pigmentation          | Minimal                |
|   | Mesenteric   | Pigmentation          | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 205

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                |                           |                       |                   |
|------------------------|----------------|---------------------------|-----------------------|-------------------|
| Note: INFILTRAT CELL   | TGLs = 8-8     |                           |                       |                   |
| Pancreas               |                | Acinus                    | Hyperplasia           | Minimal           |
| Spleen                 |                |                           | Infiltration Cellular | Histiocyte, Mild  |
|                        |                |                           | Pigmentation          | Mild              |
|                        |                |                           | Pigmentation          | Hemosiderin, Mild |
| Stomach                |                | Forestomach               | Acanthosis            | Mild              |
|                        |                | Glandular                 | Fibrosis              | Mild              |
|                        |                | Forestomach               | Hyperkeratosis        | Mild              |
|                        |                | Glandular                 | Metaplasia            | Minimal           |
|                        |                | Glandular                 | Pigmentation          | Minimal           |
| Note: ACANTHOSIS       | TGLs = 10-7    |                           |                       |                   |
| Testes                 |                | Bilateral, Interstit Cell | Adenoma               |                   |
|                        |                | Seminif Tub               | Atrophy               | Mild              |
| Note: ADENOMA          | TGLs = 3-6,4-6 |                           |                       |                   |
| Thyroid Gland          |                | C Cell                    | Adenoma               |                   |
| Note: ADENOMA          | TGLs = 5-8     |                           |                       |                   |
| PRIMARY CAUSE OF DEATH |                | -                         |                       |                   |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 206

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Bone                      | Brain                   | Epididymis               | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular  | Pancreas                |
| Parathyroid Gland         | Preputial Gland         | Prostate                 | Salivary Glands         |
| Seminal Vesicle           | Thyroid Gland           | Trachea                  | Urinary Bladder         |

**OBSERVATIONS**

|                              |              |                       |                      |
|------------------------------|--------------|-----------------------|----------------------|
| Adrenal Gland                | Cortex       | Leukemia Mononuclear  |                      |
|                              | Medulla      | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC         | TGLs = 11-8  |                       |                      |
| Bone Marrow                  |              | Pigmentation          | Minimal              |
| Heart                        |              | Cardiomyopathy        | Mild                 |
|                              |              | Leukemia Mononuclear  |                      |
| Intestine Small              | Duodenum     | Pigmentation          | Minimal              |
| Kidney                       |              | Nephropathy           | Minimal              |
|                              | Renal Tubule | Pigmentation          | Mild                 |
| Liver                        |              | Leukemia Mononuclear  |                      |
|                              |              | Pigmentation          | Minimal              |
| Note: LEUKEMIA MONUC         | TGLs = 14-3  |                       |                      |
| Lung                         |              | Leukemia Mononuclear  |                      |
|                              |              | Pigmentation          | Minimal              |
| Note: LEUKEMIA MONUC         | TGLs = 5-1+2 |                       |                      |
| Lymph Node                   | Mediastinal  | Infiltration Cellular | Histiocyte, Mild     |
|                              | Mesenteric   | Infiltration Cellular | Histiocyte, Moderate |
|                              | Mediastinal  | Pigmentation          | Minimal              |
|                              | Mesenteric   | Pigmentation          | Mild                 |
| Note: INFILTRAT CELL         | TGLs = 12-8  |                       |                      |
| Mammary Gland                |              | Fibroadenoma          |                      |
| [ Fibroadenoma TGLS = 3-14 ] |              |                       |                      |
| Nose                         |              | Fungus                | Moderate             |
|                              |              | Inflammation          | Acute, Moderate      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |  |   |  |
|-----------------------|--|---|--|
| <b>ANIMAL ID:</b> 206 | <b>TRT#:</b> 3<br><b>DOSE:</b> 0.05 G/KG 79 HM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|-----------------------|--|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                           |                       |                      |
|--|---------------------------|-----------------------|----------------------|
| Pituitary Gland  | Pars Distalis             | Angiectasis           | Moderate             |
|  | Pars Distalis             | Hyperplasia           | Mild                 |
| Note: HYPERPLASIA TGLs = 15-8  |                           |                       |                      |
| Skin   | Subcut Tiss               | Fibroma               |                      |
|  |                           | Necrosis              | Moderate             |
| Note: THIS NEOPLASM HAS FEATURES OF A NEUROFIBROMA.<br>[ Fibroma TGLS = 2-13 ]<br>[ Necrosis TGLS = 1-13 ] |                           |                       |                      |
| Spleen   |                           | Infiltration Cellular | Histiocyte, Mild     |
|  |                           | Leukemia Mononuclear  |                      |
|  |                           | Pigmentation          | Hemosiderin, Minimal |
|  |                           | Pigmentation          | Mild                 |
| Note: LEUKEMIA MONUC TGLs = 9-3  |                           |                       |                      |
| Stomach  | Glandular                 | Fibrosis              | Minimal              |
|  | Glandular                 | Metaplasia            | Minimal              |
|  | Forestomach               | Pigmentation          | Minimal              |
|  | Glandular                 | Pigmentation          | Minimal              |
| Testes   | Bilateral, Interstit Cell | Adenoma               |                      |
|  | Seminif Tub               | Atrophy               | Mild                 |
| Note: ADENOMA TGLs = 7-6   |                           |                       |                      |
| Thymus   |                           | Pigmentation          | Minimal              |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 207

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                    | Brain                    |
| Epididymis              | Esophagus                 | Intestine Large - Cecum | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Pancreas                 |
| Parathyroid Gland       | Pituitary Gland           | Preputial Gland         | Prostate                 |
| Salivary Glands         | Seminal Vesicle           | Skin                    | Stomach - Forestomach    |
| Stomach - Glandular     | Thyroid Gland             | Trachea                 | Urinary Bladder          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |              |                                  |                      |
|--|--------------|----------------------------------|----------------------|
| Bone Marrow  |              | Pigmentation                     | Minimal              |
| Heart  |              | Cardiomyopathy                   | Mild                 |
| Intestine Large  | Colon        | Parasite                         | Mild                 |
| Intestine Small  | Duodenum     | Pigmentation                     | Minimal              |
| Kidney   | Renal Tubule | Pigmentation                     | Minimal              |
| Liver  |              | Basophilic Focus                 |                      |
|  |              | Pigmentation                     | Minimal              |
| Lung   |              | Atelectasis                      | Mild                 |
|  |              | Infiltration Cellular            | Histiocyte, Mild     |
|  |              | Pigmentation                     | Mild                 |
| Note: MUCINOUS MATERIAL AND HISTIOCYTES IN BRONCHIOLES |              |                                  |                      |
| Note: INFILTRAT CELL TGLs = 6-1+2                      |              |                                  |                      |
| Lymph Node   | Mandibular   | Infiltration Cellular            | Histiocyte, Minimal  |
|  | Mediastinal  | Infiltration Cellular            | Histiocyte, Moderate |
|  | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild     |
|  | Mediastinal  | Pigmentation                     | Mild                 |
|  | Mesenteric   | Pigmentation                     | Mild                 |
| Nose   |              | Fungus                           | Mild                 |
|  |              | Inflammation                     | Acute, Moderate      |
| Spleen   |              | Hematopoietic Cell Proliferation | Mild                 |
|  |              | Infiltration Cellular            | Histiocyte, Mild     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 207

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                           |                        |                   |
|------------------------|---------------------------|------------------------|-------------------|
|                        |                           | Pigmentation           | Mild              |
|                        |                           | Pigmentation           | Hemosiderin, Mild |
| Testes                 | Bilateral, Interstit Cell | Adenoma                |                   |
|                        | Seminif Tub               | Atrophy                | Mild              |
|                        | Tunic                     | Mesothelioma Malignant |                   |
| Note: ADENOMA          | TGLs = 1-6,2-6            |                        |                   |
| Thymus                 |                           | Pigmentation           | Minimal           |
| PRIMARY CAUSE OF DEATH | -                         |                        |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 208

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Bone                     | Brain                   | Epididymis                |
| Esophagus               | Eye                      | Harderian Gland         | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Parathyroid Gland       | Preputial Gland          | Prostate                | Salivary Glands           |
| Seminal Vesicle         | Skin                     | Stomach - Forestomach   | Thyroid Gland             |
| Trachea                 | Urinary Bladder          |                         |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                   |              |                         |                      |
|-----------------------------------|--------------|-------------------------|----------------------|
| Adrenal Gland                     | Medulla      | Hyperplasia             | Minimal              |
|                                   | Medulla      | Pheochromocytoma Benign |                      |
| Bone Marrow                       |              | Pigmentation            | Minimal              |
| Heart                             |              | Cardiomyopathy          | Minimal              |
| Intestine Small                   | Duodenum     | Pigmentation            | Minimal              |
| Islets, Pancreatic                |              | Hyperplasia             | Mild                 |
| Kidney                            |              | Nephropathy             | Mild                 |
|                                   | Renal Tubule | Pigmentation            | Minimal              |
| Liver                             |              | Basophilic Focus        |                      |
|                                   |              | Inflammation            | Granulomatous, Mild  |
|                                   |              | Pigmentation            | Mild                 |
| Note: [ BASOPH FOCUS ] TGLs = 5-3 |              |                         |                      |
| Lung                              |              | Infiltration Cellular   | Histiocyte, Minimal  |
|                                   |              | Pigmentation            | Minimal              |
| Lymph Node                        | Mandibular   | Infiltration Cellular   | Histiocyte, Minimal  |
|                                   | Mediastinal  | Infiltration Cellular   | Histiocyte, Mild     |
|                                   | Mesenteric   | Infiltration Cellular   | Histiocyte, Moderate |
|                                   | Mediastinal  | Pigmentation            | Minimal              |
|                                   | Mesenteric   | Pigmentation            | Mild                 |
| Nose                              |              | Inflammation            | Acute, Minimal       |
| Pancreas                          |              | Hyperplasia             | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 208 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 738 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                 |                           |                       |                   |
|-----------------|---------------------------|-----------------------|-------------------|
| Pituitary Gland | Pars Distalis             | Angiectasis           | Minimal           |
| Spleen          |                           | Infiltration Cellular | Histiocyte, Mild  |
|                 |                           | Pigmentation          | Minimal           |
|                 |                           | Pigmentation          | Hemosiderin, Mild |
| Stomach         | Glandular                 | Fibrosis              | Minimal           |
| Testes          | Bilateral, Interstit Cell | Adenoma               |                   |
|                 | Seminif Tub               | Atrophy               | Mild              |
| Note: ADENOMA   | TGLs = 3-6,4-6            |                       |                   |
| Thymus          |                           | Pigmentation          | Minimal           |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 210

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 738

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                         |                           |
|-------------------------|-------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Bone                    | Brain                   | Epididymis                |
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Lymph Node - Mesenteric | Mammary Gland           | Pancreas                  |
| Parathyroid Gland       | Pituitary Gland         | Preputial Gland         | Prostate                  |
| Salivary Glands         | Seminal Vesicle         | Skin                    | Thyroid Gland             |
| Trachea                 | Urinary Bladder         |                         |                           |

**MISSING**

Esophagus

**OBSERVATIONS**

|  |                    |                         |                  |
|--|--------------------|-------------------------|------------------|
| Adrenal Gland  | Bilateral, Medulla | Pheochromocytoma Benign |                  |
| Bone Marrow  |                    | Pigmentation            | Minimal          |
| Heart  |                    | Cardiomyopathy          | Mild             |
|  |                    | Pigmentation            | Minimal          |
| Intestine Large  | Rectum             | Parasite                | Minimal          |
| Intestine Small  | Duodenum           | Pigmentation            | Minimal          |
| Kidney   |                    | Nephropathy             | Minimal          |
|  | Renal Tubule       | Pigmentation            | Minimal          |
| Liver  |                    | Basophilic Focus        |                  |
|  |                    | Eosinophilic Focus      |                  |
|  | Bile Duct          | Hyperplasia             | Mild             |
|  |                    | Leukemia Mononuclear    |                  |
|  |                    | Pigmentation            | Minimal          |
| Note: LEUKEMIA MONUC                                   | TGLs = 5-3,6-3,9-3 |                         |                  |
| Note: [ EOSIN FOCUS ]                                  | TGLs = 6-3         |                         |                  |
| Lung   |                    | Atelectasis             | Mild             |
|  |                    | Infiltration Cellular   | Histiocyte, Mild |
|  |                    | Leukemia Mononuclear    |                  |
|  |                    | Pigmentation            | Minimal          |
| Note: MUCINOUS MATERIAL AND HISTIOCYTES IN BRONCHIOLES |                    |                         |                  |
| Note: INFILTRAT CELL                                   | TGLs = 2-1+2       |                         |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 210      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 738  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                           |                                  |                      |
|--|---------------------------|----------------------------------|----------------------|
| Lymph Node                             | Mandibular                | Infiltration Cellular            | Histiocyte, Mild     |
|  | Mediastinal               | Infiltration Cellular            | Histiocyte, Mild     |
|  | Pancreatic                | Infiltration Cellular            | Histiocyte, Minimal  |
|  | Mandibular                | Pigmentation                     | Minimal              |
|  | Mediastinal               | Pigmentation                     | Minimal              |
| Note: INFILTRAT CELL TGLs = 3-9        |                           |                                  |                      |
| Nose                                   |                           | Inflammation                     | Acute, Moderate      |
| Spleen                                 |                           | Hematopoietic Cell Proliferation | Mild                 |
|  |                           | Infiltration Cellular            | Histiocyte, Minimal  |
|  |                           | Leukemia Mononuclear             |                      |
|  |                           | Pigmentation                     | Hemosiderin, Minimal |
|  |                           | Pigmentation                     | Minimal              |
| [ Infiltration Cellular TGLS = 4-3.1 ] |                           |                                  |                      |
| Stomach                                | Glandular                 | Fibrosis                         | Mild                 |
|  | Forestomach               | Hyperkeratosis                   | Moderate             |
|  | Glandular                 | Hyperplasia                      | Minimal              |
|  | Glandular                 | Metaplasia                       | Minimal              |
|  | Forestomach               | Squamous Cell Papilloma          |                      |
| Note: HYPERKERATOSIS TGLs = 10-7       |                           |                                  |                      |
| Testes                                 | Bilateral, Interstit Cell | Adenoma                          |                      |
|  | Seminif Tub               | Atrophy                          | Mild                 |
| Note: ADENOMA TGLs = 1-6               |                           |                                  |                      |
| Thymus                                 |                           | Pigmentation                     | Minimal              |

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 211

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 405

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Accident

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Kidney                   | Lymph Node - Mandibular | Mammary Gland             | Nose                    |
| Pancreas                 | Parathyroid Gland       | Preputial Gland           | Prostate                |
| Salivary Glands          | Seminal Vesicle         | Skin                      | Stomach - Forestomach   |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

**MISSING**

Thymus

**OBSERVATIONS**

|                 |                           |                                  |                        |
|-----------------|---------------------------|----------------------------------|------------------------|
| Bone Marrow     |                           | Pigmentation                     | Minimal                |
| Heart           |                           | Cardiomyopathy                   | Mild                   |
| Intestine Small | Duodenum                  | Pigmentation                     | Minimal                |
| Liver           |                           | Clear Cell Focus                 |                        |
|                 |                           | Pigmentation                     | Minimal                |
| Lung            |                           | Edema                            | Minimal                |
|                 |                           | Inflammation                     | Granulomatous, Minimal |
|                 |                           | Pigmentation                     | Minimal                |
| Note: EDEMA     | TGLs = 1-1+2              |                                  |                        |
| Lymph Node      | Mesenteric                | Pigmentation                     | Mild                   |
| Pituitary Gland | Pars Distalis             | Hyperplasia                      | Mild                   |
| Spleen          |                           | Hematopoietic Cell Proliferation | Mild                   |
|                 |                           | Pigmentation                     | Mild                   |
|                 |                           | Pigmentation                     | Hemosiderin, Mild      |
| Stomach         | Glandular                 | Fibrosis                         | Mild                   |
|                 | Glandular                 | Hyperplasia                      | Mild                   |
|                 | Glandular                 | Inflammation                     | Acute, Minimal         |
|                 | Glandular                 | Metaplasia                       | Minimal                |
| Testes          | Bilateral, Interstit Cell | Adenoma                          |                        |
|                 | Interstit Cell            | Hyperplasia                      | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 211

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 405

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Accident

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 212      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 738  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                           |                                  |                        |
|--|---------------------------|----------------------------------|------------------------|
|  | Mesenteric                | Infiltration Cellular            | Histiocyte, Mild       |
|  | Mediastinal               | Pigmentation                     | Minimal                |
|  | Mesenteric                | Pigmentation                     | Minimal                |
| Nose                                   |                           | Fungus                           | Mild                   |
|  |                           | Inflammation                     | Acute, Mild            |
| Pituitary Gland                        | Pars Distalis             | Adenoma                          |                        |
|  | Pars Distalis             | Angiectasis                      | Mild                   |
| Note: ADENOMA      TGLs = 3-8          |                           |                                  |                        |
| Spleen                                 |                           | Hematopoietic Cell Proliferation | Mild                   |
|  |                           | Infiltration Cellular            | Histiocyte, Mild       |
|  |                           | Inflammation                     | Granulomatous, Minimal |
|  |                           | Pigmentation                     | Mild                   |
|  |                           | Pigmentation                     | Hemosiderin, Mild      |
| Note: INFILTRAT CELL      TGLs = 4-3.1 |                           |                                  |                        |
| Stomach                                | Glandular                 | Fibrosis                         | Minimal                |
|  | Glandular                 | Hyperplasia                      | Minimal                |
|  | Glandular                 | Inflammation                     | Acute, Minimal         |
|  | Glandular                 | Metaplasia                       | Minimal                |
|  | Glandular                 | Pigmentation                     | Minimal                |
| Testes                                 | Bilateral, Interstit Cell | Adenoma                          |                        |
|  | Interstit Cell            | Hyperplasia                      | Mild                   |
|  | Tunic                     | Mesothelioma Malignant           |                        |
| Thymus                                 |                           | Pigmentation                     | Minimal                |
| Thyroid Gland                          | C Cell                    | Hyperplasia                      | Mild                   |
| PRIMARY CAUSE OF DEATH                 | -                         |                                  |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 214

TRT#: 3

SEX: Male

DAY ON TEST: 739

DOSE: 0.05 G/KG 79 HM

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Epididymis  
Intestine Large - Rectum  
Pancreas  
Prostate  
Stomach - Forestomach

Adrenal Gland - Medulla  
Esophagus  
Intestine Small - Ileum  
Parathyroid Gland  
Salivary Glands  
Thyroid Gland

Bone  
Intestine Large - Cecum  
Mammary Gland  
Pituitary Gland  
Seminal Vesicle  
Trachea

Brain  
Intestine Large - Colon  
Nose  
Preputial Gland  
Skin  
Urinary Bladder

OBSERVATIONS

Bone Marrow  
Heart  
Intestine Small  
  
Islets, Pancreatic  
Kidney  
  
Liver

Duodenum  
Jejunum  
  
  
Renal Tubule  
  
Bile Duct

Pigmentation  
Cardiomyopathy  
Pigmentation  
Pigmentation  
Adenoma  
Nephropathy  
Pigmentation  
Basophilic Focus  
Clear Cell Focus  
Hyperplasia  
Leukemia Mononuclear  
Mixed Cell Focus  
Pigmentation

Mild  
Mild  
Minimal  
Minimal  
  
Mild  
Mild  
  
Minimal  
  
Minimal

Note: LEUKEMIA MONUC TGLs = 12-3  
Note: MANY CLEAR CELL FOCI  
Note: [ MIXED CL FOCUS ] TGLs = 11,13-3

Lung

Atelectasis  
Infiltration Cellular  
Inflammation  
Pigmentation  
Pigmentation

Mild  
Histiocyte, Moderate  
Granulomatous, Minimal  
Mild  
Cholesterol, Mild

Note: PIGMENT TGLs = 9,10-1+1.1+2+16  
Note: MUCINOUS MATERIAL IN BRONCHIOLES

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 214

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: INFILTRAT CELL TGLs = 8,9-1+1.1+2+16

|            |            |                       |                      |
|------------|------------|-----------------------|----------------------|
| Lymph Node | Mandibular | Infiltration Cellular | Histiocyte, Mild     |
|            | Mesenteric | Infiltration Cellular | Histiocyte, Moderate |
|            | Renal      | Infiltration Cellular | Histiocyte, Moderate |
|            | Mesenteric | Mineralization        | Mild                 |
|            | Mandibular | Pigmentation          | Minimal              |
|            | Mesenteric | Pigmentation          | Mild                 |
|            | Renal      | Pigmentation          | Mild                 |

Note: INFILTRAT CELL TGLs = 7-4

|        |  |                      |  |
|--------|--|----------------------|--|
| Spleen |  | Leukemia Mononuclear |  |
|--------|--|----------------------|--|

Note: LEUKEMIA MONUC TGLs = 6-3

|         |                           |              |         |
|---------|---------------------------|--------------|---------|
| Stomach | Glandular                 | Pigmentation | Minimal |
| Testes  | Bilateral, Interstit Cell | Adenoma      |         |
|         | Seminif Tub               | Atrophy      | Mild    |
|         | Interstit Cell            | Hyperplasia  | Mild    |

Note: MAST CELLS AND PIGMENT

Note: ADENOMA TGLs = 3-6

|        |  |              |         |
|--------|--|--------------|---------|
| Thymus |  | Pigmentation | Minimal |
|--------|--|--------------|---------|

PRIMARY CAUSE OF DEATH

-

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 215 | <b>TRT#:</b> 3               | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 465 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Epididymis               | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lung                    |
| Lymph Node - Mandibular   | Mammary Gland            | Nose                       | Pancreas                |
| Parathyroid Gland         | Prostate                 | Salivary Glands            | Seminal Vesicle         |
| Stomach - Forestomach     | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

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**MISSING**

Preputial Gland

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**OBSERVATIONS**

|                                      |                         |                                  |                     |
|--------------------------------------|-------------------------|----------------------------------|---------------------|
| Heart                                |                         | Cardiomyopathy                   | Mild                |
| Liver                                |                         | Basophilic Focus                 |                     |
|                                      |                         | Clear Cell Focus                 |                     |
| Lymph Node                           | Mediastinal             | Infiltration Cellular            | Histiocyte, Minimal |
|                                      | Mesenteric              | Infiltration Cellular            | Histiocyte, Mild    |
| Pituitary Gland                      | Pars Distalis           | Adenoma                          |                     |
| Skin                                 | Subcut Tiss             | Fibroma                          |                     |
|                                      | [ Fibroma TGLS = 1-13 ] |                                  |                     |
| Spleen                               |                         | Hematopoietic Cell Proliferation | Mild                |
| Stomach                              | Glandular               | Hyperplasia                      | Mild                |
|                                      | Glandular               | Metaplasia                       | Minimal             |
| Note: AREAS OF INTESTINAL METAPLASIA |                         |                                  |                     |
| Testes                               | Interstit Cell          | Hyperplasia                      | Minimal             |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 216

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Nose                    | Parathyroid Gland         | Pituitary Gland         |
| Prostate                 | Salivary Glands         | Seminal Vesicle           | Skin                    |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

**OBSERVATIONS**

|                                   |              |                       |                      |
|-----------------------------------|--------------|-----------------------|----------------------|
| Bone Marrow                       |              | Pigmentation          | Minimal              |
| Heart                             |              | Cardiomyopathy        | Mild                 |
| Intestine Small                   | Duodenum     | Pigmentation          | Minimal              |
| Kidney                            | Papilla      | Mineralization        | Minimal              |
|                                   |              | Nephropathy           | Mild                 |
|                                   | Renal Tubule | Pigmentation          | Mild                 |
| Liver                             |              | Basophilic Focus      |                      |
|                                   |              | Clear Cell Focus      |                      |
|                                   |              | Fatty Change          | Focal, Mild          |
|                                   |              | Pigmentation          | Minimal              |
| Note: CLEAR CL FOCUS TGLs = 7-3   |              |                       |                      |
| Lung                              |              | Infiltration Cellular | Histiocyte, Mild     |
|                                   |              | Pigmentation          | Minimal              |
| Note: INFILTRAT CELL TGLs = 3-1+2 |              |                       |                      |
| Lymph Node                        | Axillary     | Angiectasis           | Mild                 |
|                                   | Axillary     | Infiltration Cellular | Histiocyte, Mild     |
|                                   | Mandibular   | Infiltration Cellular | Histiocyte, Mild     |
|                                   | Mediastinal  | Infiltration Cellular | Histiocyte, Minimal  |
|                                   | Mesenteric   | Infiltration Cellular | Histiocyte, Moderate |
|                                   | Mandibular   | Pigmentation          | Mild                 |
|                                   | Mediastinal  | Pigmentation          | Minimal              |
|                                   | Mesenteric   | Pigmentation          | Mild                 |

Note: TGL #1 PROBABLY REFERS TO AXILLARY LN

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 216      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 739  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                  |                           |                       |                   |
|------------------|---------------------------|-----------------------|-------------------|
| Pancreas         | Acinus                    | Hyperplasia           | Moderate          |
| Preputial Gland  |                           | Adenoma               |                   |
| Note: ADENOMA    | TGLs = 2-10               |                       |                   |
| Spleen           |                           | Infiltration Cellular | Histiocyte, Mild  |
|                  |                           | Pigmentation          | Hemosiderin, Mild |
|                  |                           | Pigmentation          | Mild              |
| Stomach          | Forestomach               | Acanthosis            | Moderate          |
|                  | Glandular                 | Fibrosis              | Mild              |
|                  | Forestomach               | Hyperkeratosis        | Mild              |
|                  | Glandular                 | Hyperplasia           | Minimal           |
|                  | Glandular                 | Metaplasia            | Mild              |
|                  | Glandular                 | Pigmentation          | Mild              |
|                  | Fat                       | Proliferation         | Mild              |
| Note: ACANTHOSIS | TGLs = 8-8                |                       |                   |
| Testes           | Bilateral, Interstit Cell | Adenoma               |                   |
|                  | Seminif Tub               | Atrophy               | Mild              |
|                  | Interstit Cell            | Hyperplasia           | Minimal           |
| Note: ADENOMA    | TGLs = 5-6                |                       |                   |
| Thymus           |                           | Pigmentation          | Minimal           |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 217

TRT#: 3

SEX: Male

DAY ON TEST: 662

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Brain                     | Epididymis              | Esophagus                |
| Heart                   | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Kidney                   |
| Nose                    | Parathyroid Gland         | Prostate                | Salivary Glands          |
| Seminal Vesicle         | Skin                      | Trachea                 |                          |

MISSING

|               |                 |                 |  |
|---------------|-----------------|-----------------|--|
| Mammary Gland | Pituitary Gland | Urinary Bladder |  |
|---------------|-----------------|-----------------|--|

OBSERVATIONS

|  |                    |                         |                      |
|--|--------------------|-------------------------|----------------------|
| Adrenal Gland                          | Cortex             | Hyperplasia             | Mild                 |
|  | Medulla            | Hyperplasia             | Mild                 |
|  | Bilateral, Medulla | Pheochromocytoma Benign |                      |
| Bone Marrow                            |                    | Pigmentation            | Minimal              |
| Intestine Small                        | Duodenum           | Pigmentation            | Minimal              |
| Liver                                  |                    | Basophilic Focus        |                      |
|  |                    | Clear Cell Focus        |                      |
|  |                    | Eosinophilic Focus      |                      |
|  |                    | Fatty Change            | Focal, Mild          |
|  |                    | Necrosis                | Minimal              |
|  |                    | Pigmentation            | Minimal              |
| Note: FATTY CHANGE                     | TGLs = 10-3        |                         |                      |
| Lung                                   |                    | Atelectasis             | Mild                 |
|  |                    | Infiltration Cellular   | Histiocyte, Moderate |
|  |                    | Inflammation            | Granulomatous, Mild  |
|  |                    | Pigmentation            | Mild                 |
| Note: INFILTRAT CELL                   | TGLs = 4-1+2       |                         |                      |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES |                    |                         |                      |
| Lymph Node                             | Mandibular         | Infiltration Cellular   | Histiocyte, Minimal  |
|  | Mediastinal        | Infiltration Cellular   | Histiocyte, Mild     |
|  | Mesenteric         | Infiltration Cellular   | Histiocyte, Moderate |
|  | Mandibular         | Pigmentation            | Minimal              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

| ANIMAL ID: 217                                  | TRT#: 3<br>DOSE: 0.05 G/KG 79 HM | SEX: Male<br>DISP: Moribund      | DAY ON TEST: 662<br>HISTO: |
|---|----------------------------------|----------------------------------|----------------------------|
| <b>ORGAN AND ACCOUNTABLE SITE STATUS</b>        |                                  |                                  |                            |
|   | Mediastinal                      | Pigmentation                     | Minimal                    |
|   | Mesenteric                       | Pigmentation                     | Mild                       |
| Note: INFILTRAT CELL TGLs = 7-8                 |                                  |                                  |                            |
| Pancreas  | Acinus                           | Hyperplasia                      | Mild                       |
| Preputial Gland                                 |                                  | Adenoma                          |                            |
| Note: ADENOMA TGLs = 2-13                       |                                  |                                  |                            |
| Spleen  |                                  | Hematopoietic Cell Proliferation | Moderate                   |
|   |                                  | Infiltration Cellular            | Histiocyte, Minimal        |
|   |                                  | Pigmentation                     | Hemosiderin, Mild          |
|   |                                  | Pigmentation                     | Mild                       |
| [ Hematopoietic Cell Proliferation TGLS = 8-3 ] |                                  |                                  |                            |
| Stomach   | Forestomach                      | Acanthosis                       | Minimal                    |
|   | Glandular                        | Erosion                          | Minimal                    |
|   | Glandular                        | Fibrosis                         | Mild                       |
|   | Forestomach                      | Hyperkeratosis                   | Moderate                   |
|   | Glandular                        | Hyperplasia                      | Minimal                    |
|   | Glandular                        | Metaplasia                       | Minimal                    |
| Note: HYPERKERATOSIS TGLs = 12-7                |                                  |                                  |                            |
| Testes  | Bilateral, Interstit Cell        | Adenoma                          |                            |
|   | Seminif Tub                      | Atrophy                          | Mild                       |
|   | Interstit Cell                   | Hyperplasia                      | Minimal                    |
| Note: ADENOMA TGLs = 5-6,6-6                    |                                  |                                  |                            |
| Thymus  |                                  | Pigmentation                     | Minimal                    |
| Thyroid Gland                                   | C Cell                           | Adenoma                          |                            |
| PRIMARY CAUSE OF DEATH                          | -                                |                                  |                            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 218

TRT#: 3

SEX: Male

DAY ON TEST: 708

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                    | Epididymis               | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Pancreas                 | Preputial Gland         |
| Prostate                  | Salivary Glands         | Seminal Vesicle          | Skin                    |
| Thyroid Gland             | Urinary Bladder         |                          |                         |

MISSING

Parathyroid Gland

OBSERVATIONS

|                                     |              |                            |                  |
|-------------------------------------|--------------|----------------------------|------------------|
| Adrenal Gland                       | Medulla      | Hyperplasia                | Mild             |
|                                     | Medulla      | Pheochromocytoma Benign    |                  |
| Note: PHEOCHROM BGN TGLs = 9-8      |              |                            |                  |
| Note: HYPERPLASIA TGLs = 10-8       |              |                            |                  |
| Bone Marrow                         |              | Pigmentation               | Minimal          |
| Brain                               |              | Metaplasia                 | Osseous, Minimal |
| Note: DISTENDED VENTRICLES          |              |                            |                  |
| Note: METAPL TGLs = 13-5            |              |                            |                  |
| Heart                               |              | Cardiomyopathy             | Mild             |
| Intestine Small                     | Duodenum     | Pigmentation               | Minimal          |
| Kidney                              |              | Nephropathy                | Mild             |
|                                     | Renal Tubule | Pigmentation               | Mild             |
| Liver                               |              | Basophilic Focus           |                  |
|                                     |              | Fatty Change               | Focal, Minimal   |
|                                     |              | Hepatocellular Adenoma     |                  |
|                                     |              | Hepatodiaphragmatic Nodule |                  |
|                                     |              | Pigmentation               | Minimal          |
| Note: [ HEPATOCLR ADEN ] TGLs = 6-3 |              |                            |                  |
| Note: ANOM HEPAT LOB TGLs = 12-3    |              |                            |                  |
| Lung                                |              | Bacterium                  | Mild             |
|                                     |              | Infiltration Cellular      | Histiocyte, Mild |
|                                     |              | Inflammation               | Acute, Marked    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 218      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 708  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                  |                           |                                  |                      |
|----------------------------------|---------------------------|----------------------------------|----------------------|
|                                  |                           | Pigmentation                     | Cholesterol, Minimal |
| Note: INFLAMMATION               | TGLs = 3-1+2,4-1+2        |                                  |                      |
| Note: MORE LIKE BRONCHOPNEUMONIA |                           |                                  |                      |
| Lymph Node                       | Mandibular                | Infiltration Cellular            | Histiocyte, Minimal  |
|                                  | Mesenteric                | Infiltration Cellular            | Histiocyte, Moderate |
|                                  | Mandibular                | Pigmentation                     | Minimal              |
|                                  | Mesenteric                | Pigmentation                     | Mild                 |
| Note: INFILTRAT CELL             | TGLs = 2-9                |                                  |                      |
| Mammary Gland                    |                           | Galactocele                      |                      |
| Nose                             |                           | Inflammation                     | Acute, Mild          |
| Pituitary Gland                  | Pars Distalis             | Adenoma                          |                      |
|                                  | Pars Distalis             | Angiectasis                      | Moderate             |
| Note: ADENOMA                    | TGLs = 8-8                |                                  |                      |
| Spleen                           |                           | Depletion Lymphoid               | Mild                 |
|                                  |                           | Hematopoietic Cell Proliferation | Moderate             |
|                                  |                           | Infiltration Cellular            | Histiocyte, Mild     |
|                                  |                           | Pigmentation                     | Mild                 |
|                                  |                           | Pigmentation                     | Hemosiderin, Mild    |
| Note: DEPLET LYMPH               | TGLs = 5-3                |                                  |                      |
| Stomach                          | Forestomach               | Acanthosis                       | Mild                 |
|                                  | Glandular                 | Erosion                          | Mild                 |
|                                  | Glandular                 | Fibrosis                         | Mild                 |
|                                  | Forestomach               | Hyperkeratosis                   | Mild                 |
|                                  | Glandular                 | Hyperplasia                      | Mild                 |
|                                  | Glandular                 | Metaplasia                       | Minimal              |
|                                  | Glandular                 | Pigmentation                     | Minimal              |
| Testes                           | Bilateral, Interstit Cell | Adenoma                          |                      |
|                                  | Seminif Tub               | Atrophy                          | Mild                 |
|                                  | Interstit Cell            | Hyperplasia                      | Minimal              |
| Thymus                           |                           | Depletion Lymphoid               | Moderate             |
|                                  |                           | Pigmentation                     | Minimal              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 218

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 708

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|         |              |                |
|---------|--------------|----------------|
| Trachea | Inflammation | Acute, Minimal |
|---------|--------------|----------------|

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 219

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Bone                    | Brain                     | Epididymis               | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Pancreas                  | Parathyroid Gland        | Pituitary Gland            |
| Preputial Gland         | Prostate                  | Salivary Glands          | Seminal Vesicle            |
| Skin                    | Trachea                   | Urinary Bladder          |                            |

**OBSERVATIONS**

|   |                           |  |  |
|---|---------------------------|--|--|
| Adrenal Gland   | Medulla<br>Cortex         | Hyperplasia<br>Leukemia Mononuclear                                      | Mild                                       |
| Note: LEUKEMIA MONUC TGLs = 10-8<br>Note: 1991 CONVERSION DISCREPANCY. ORIGINAL DIAGNOSIS SITE NOT SPECIFIED. |                           |  |  |
| Bone  |                           |  |  |
| Note: SLIGHT THICKENING AND PROTUBERANCE IN AN AREA   |                           |  |  |
| Bone Marrow   |                           | Pigmentation   | Minimal                                    |
| Heart   |                           | Cardiomyopathy<br>Leukemia Mononuclear                                   | Mild                                       |
| Note: A FEW ANITSCHKOW MYOCYTES   |                           |  |  |
| Kidney  |                           | Leukemia Mononuclear<br>Nephropathy                                      | Minimal                                    |
|   | Renal Tubule              | Pigmentation   | Mild                                       |
| Liver   |                           | Basophilic Focus<br>Degeneration<br>Leukemia Mononuclear<br>Pigmentation | Cystic, Mild<br>Minimal                    |
| Note: [ BASOPH FOCUS ] TGLs = 16-3<br>[ Degeneration TGLS = 12-3 ]  |                           |  |  |
| Lung  |                           | Leukemia Mononuclear   |  |
| Note: LEUKEMIA MONUC TGLs = 2-1+2   |                           |  |  |
| Lymph Node  | Mandibular<br>Mediastinal | Infiltration Cellular<br>Infiltration Cellular                           | Histiocyte, Minimal<br>Histiocyte, Minimal |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |  |   |  |
|-----------------------|--|---|--|
| <b>ANIMAL ID:</b> 219 | <b>TRT#:</b> 3<br><b>DOSE:</b> 0.05 G/KG 79 HM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|-----------------------|--|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |                           |                       |                      |
|---|---------------------------|-----------------------|----------------------|
|   | Mesenteric                | Infiltration Cellular | Histiocyte, Moderate |
|   | Pancreatic                | Infiltration Cellular | Histiocyte, Minimal  |
|   | Mandibular                | Pigmentation          | Minimal              |
|   | Mediastinal               | Pigmentation          | Minimal              |
|   | Mesenteric                | Pigmentation          | Mild                 |
| Note: INFILTRAT CELL TGLs = 11-8            |                           |                       |                      |
| Spleen                                      |                           | Leukemia Mononuclear  |                      |
| [ Leukemia Mononuclear TGLS = 6-3.1,7-3.1 ] |                           |                       |                      |
| Stomach                                     | Forestomach               | Acanthosis            | Mild                 |
|   | Glandular                 | Fibrosis              | Mild                 |
|   | Glandular                 | Hyperplasia           | Mild                 |
|   | Glandular                 | Metaplasia            | Mild                 |
|   | Fat                       | Proliferation         | Moderate             |
| Note: HYPERPLASIA TGLs = 17-7               |                           |                       |                      |
| Testes                                      | Bilateral, Interstit Cell | Adenoma               |                      |
|   | Seminif Tub               | Atrophy               | Moderate             |
| Note: ATROPHY TGLs = 5-6                    |                           |                       |                      |
| Note: ADENOMA TGLs = 3-6,4-6,5-6            |                           |                       |                      |
| Thymus                                      |                           | Leukemia Mononuclear  |                      |
|   |                           | Pigmentation          | Minimal              |
| Thyroid Gland                               | C Cell                    | Hyperplasia           | Minimal              |
| PRIMARY CAUSE OF DEATH                      | -                         |                       |                      |

\* PROTOCOL REQUIRED TISSUE





**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |  |   |  |
|-----------------------|--|---|--|
| <b>ANIMAL ID:</b> 221 | <b>TRT#:</b> 3<br><b>DOSE:</b> 0.05 G/KG 79 HM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|-----------------------|--|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                               |                           |                       |                  |
|-------------------------------|---------------------------|-----------------------|------------------|
|                               | Mesenteric                | Infiltration Cellular | Histiocyte, Mild |
|                               | Lumbar                    | Pigmentation          | Mild             |
|                               | Mediastinal               | Pigmentation          | Minimal          |
| Note: INFILTRAT CELL          | TGLs = 10-14              |                       |                  |
| Note: DEGEN                   | TGLs = 3-9                |                       |                  |
| Nose                          |                           | Inflammation          | Acute, Mild      |
| Pancreas                      | Acinus                    | Hyperplasia           | Mild             |
| Pituitary Gland               | Pars Distalis             | Hyperplasia           | Mild             |
| Preputial Gland               |                           | Adenoma               |                  |
| Note: ADENOMA                 | TGLs = 2-10               |                       |                  |
| Seminal Vesicle               | Epithelium                | Hyperplasia           | Mild             |
| Note: HYPERPLASIA             | TGLs = 7-6                |                       |                  |
| Spleen                        |                           | Hemorrhage            | Mild             |
|                               |                           | Leukemia Mononuclear  |                  |
|                               |                           | Thrombosis            | Marked           |
| Note: LEUKEMIA MONUC          | TGLs = 9-3+3.1            |                       |                  |
| Note: THROMBUS                | TGLs = 8-3.1              |                       |                  |
| Stomach                       | Glandular                 | Erosion               | Mild             |
|                               | Glandular                 | Fibrosis              | Mild             |
|                               | Glandular                 | Hyperplasia           | Mild             |
| Note: HYPERPLASIA             | TGLs = 19-7               |                       |                  |
| Testes                        | Bilateral, Interstit Cell | Adenoma               |                  |
|                               | Seminif Tub               | Atrophy               | Moderate         |
|                               | Interstit Cell            | Hyperplasia           | Mild             |
| Note: PIGMENT IN INTERSTITIUM |                           |                       |                  |
| Note: ATROPHY                 | TGLs = 6-6                |                       |                  |
| Thymus                        |                           | Depletion Lymphoid    | Moderate         |
|                               |                           | Pigmentation          | Mild             |

|                               |   |
|-------------------------------|---|
| <b>PRIMARY CAUSE OF DEATH</b> | - |
|-------------------------------|---|

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 222

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 264

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Liver                   | Lymph Node - Mandibular   | Mammary Gland            | Nose                       |
| Pancreas                | Preputial Gland           | Prostate                 | Salivary Glands            |
| Seminal Vesicle         | Skin                      | Spleen                   | Stomach - Forestomach      |
| Stomach - Glandular     | Testes                    | Thymus                   | Thyroid Gland              |
| Trachea                 | Urinary Bladder           |                          |                            |

**MISSING**

|                   |                 |
|-------------------|-----------------|
| Parathyroid Gland | Pituitary Gland |
|-------------------|-----------------|

**OBSERVATIONS**

|  |            |                       |                     |
|--|------------|-----------------------|---------------------|
| Lung   |            | Edema                 | Mild                |
|  |            | Hemorrhage            | Mild                |
|  |            | Infiltration Cellular | Histiocyte, Mild    |
|  | Bronchus   | Inflammation          | Chronic, Moderate   |
|  |            | Inflammation          | Granulomatous, Mild |
|  |            | Pigmentation          | Mild                |
| Note: MUCINOUS MATERIAL AND FIBROTIC PLUGS IN MANY BRONCHIOLES<br>[ Edema TGLS = 2-1+2 ] |            |                       |                     |
| Lymph Node   | Mesenteric | Pigmentation          | Mild                |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 223

TRT#: 3

SEX: Male

DAY ON TEST: 248

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Islets, Pancreatic  
Nose  
Prostate  
Stomach - Forestomach  
Thyroid Gland

Adrenal Gland - Medulla  
Epididymis  
Intestine Large - Rectum  
Kidney  
Pancreas  
Salivary Glands  
Stomach - Glandular  
Trachea

Bone  
Esophagus  
Intestine Small - Duodenum  
Lymph Node - Mandibular  
Pituitary Gland  
Seminal Vesicle  
Testes  
Urinary Bladder

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Ileum  
Mammary Gland  
Preputial Gland  
Skin  
Thymus

**MISSING**

Parathyroid Gland

**AUTO PRECLUDES DIAG.**

Intestine Small - Jejunum

**OBSERVATIONS**

Heart  
Liver

Cardiomyopathy  
Congestion  
Eosinophilic Focus

Mild  
Mild

Note: CONGESTION TGLs = 3-3

Lung

Atelectasis  
Edema  
Hemorrhage  
Infiltration Cellular  
Inflammation  
Pigmentation

Mild  
Mild  
Mild  
Histiocyte, Mild  
Granulomatous, Mild  
Mild

Note: MARKEDLY DISTENDED BRONCHIOLES WITH MUCIN

[ Edema TGLS = 1-1+2 ]

Lymph Node  
Spleen

Mesenteric

Pigmentation  
Pigmentation

Mild  
Hemosiderin, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 224

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular  | Mammary Gland           | Parathyroid Gland         | Pituitary Gland         |
| Preputial Gland          | Prostate                | Salivary Glands           | Seminal Vesicle         |
| Skin                     | Thymus                  | Thyroid Gland             | Trachea                 |
| Urinary Bladder          |                         |                           |                         |

**OBSERVATIONS**

|                                       |             |                              |                         |
|---------------------------------------|-------------|------------------------------|-------------------------|
| Bone Marrow                           |             | Pigmentation                 | Minimal                 |
| Heart                                 |             | Cardiomyopathy               | Mild                    |
| Intestine Small                       | Duodenum    | Pigmentation                 | Minimal                 |
| Kidney                                | Papilla     | Mineralization               | Minimal                 |
|                                       |             | Nephropathy                  | Mild                    |
| Liver                                 |             | Basophilic Focus             |                         |
|                                       |             | Clear Cell Focus             |                         |
|                                       |             | Inflammation                 | Granulomatous, Moderate |
|                                       |             | Necrosis                     | Minimal                 |
|                                       |             | Pigmentation                 | Mild                    |
| Note: BASOPH FOCUS TGLs = 8-3         |             |                              |                         |
| Lung                                  |             | Alveolar/Bronchiolar Adenoma |                         |
|                                       |             | Infiltration Cellular        | Histiocyte, Mild        |
|                                       |             | Inflammation                 | Granulomatous, Minimal  |
|                                       |             | Pigmentation                 | Minimal                 |
| Note: ALV BRON ADEN TGLs = 4-2.1      |             |                              |                         |
| Note: INFILTRAT CELL TGLs = 1-1+2+2.1 |             |                              |                         |
| Note: INFLAMMATION TGLs = 2-1         |             |                              |                         |
| Lymph Node                            | Mediastinal | Infiltration Cellular        | Histiocyte, Minimal     |
|                                       | Mesenteric  | Infiltration Cellular        | Histiocyte, Moderate    |
|                                       | Mesenteric  | Pigmentation                 | Mild                    |
| Nose                                  |             | Inflammation                 | Acute, Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |  |   |  |
|-----------------------|--|---|--|
| <b>ANIMAL ID:</b> 224 | <b>TRT#:</b> 3<br><b>DOSE:</b> 0.05 G/KG 79 HM | <b>SEX:</b> Male<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 739<br><b>HISTO:</b> |
|-----------------------|--|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                      |                           |                                  |                   |
|----------------------|---------------------------|----------------------------------|-------------------|
| Pancreas             | Acinus                    | Hyperplasia                      | Moderate          |
| Spleen               |                           | Hematopoietic Cell Proliferation | Mild              |
|                      |                           | Infiltration Cellular            | Histiocyte, Mild  |
|                      |                           | Pigmentation                     | Hemosiderin, Mild |
|                      |                           | Pigmentation                     | Mild              |
| Stomach              | Forestomach               | Acanthosis                       | Mild              |
|                      | Glandular                 | Fibrosis                         | Mild              |
|                      | Forestomach               | Hyperkeratosis                   | Moderate          |
|                      | Glandular                 | Metaplasia                       | Minimal           |
| Note: HYPERKERATOSIS | TGLs = 9-7                |                                  |                   |
| Testes               | Bilateral, Interstit Cell | Adenoma                          |                   |
|                      | Seminif Tub               | Atrophy                          | Mild              |
|                      | Interstit Cell            | Hyperplasia                      | Mild              |
| Note: ADENOMA        | TGLs = 5-6,6-6            |                                  |                   |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 225

TRT#: 3

SEX: Male

DAY ON TEST: 612

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                          |                         |                         |
|-------------------------|--------------------------|-------------------------|-------------------------|
| Bone                    | Epididymis               | Esophagus               | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      |
| Lymph Node - Mandibular | Parathyroid Gland        | Pituitary Gland         | Preputial Gland         |
| Prostate                | Salivary Glands          | Seminal Vesicle         | Skin                    |
| Trachea                 | Urinary Bladder          |                         |                         |

MISSING

|               |        |
|---------------|--------|
| Mammary Gland | Thymus |
|---------------|--------|

OBSERVATIONS

|   |                 |                       |                      |
|---|-----------------|-----------------------|----------------------|
| Adrenal Gland   | Medulla         | Hyperplasia           | Mild                 |
|   | Cortex          | Leukemia Mononuclear  |                      |
|   | Medulla         | Leukemia Mononuclear  |                      |
| Bone Marrow   |                 | Pigmentation          | Minimal              |
| Brain   |                 | Leukemia Mononuclear  |                      |
| Heart   |                 | Leukemia Mononuclear  |                      |
| Intestine Small   | Duodenum        | Pigmentation          | Minimal              |
|   | Jejunum         | Pigmentation          | Minimal              |
| Kidney  |                 | Leukemia Mononuclear  |                      |
|   | Renal Tubule    | Pigmentation          | Minimal              |
| Liver   |                 | Fatty Change          | Focal, Mild          |
|   |                 | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC  | TGLs = 9-3,10-3 |                       |                      |
| Lung  |                 | Atelectasis           | Mild                 |
|   |                 | Edema                 | Mild                 |
|   |                 | Infiltration Cellular | Histiocyte, Mild     |
|   |                 | Leukemia Mononuclear  |                      |
|   |                 | Necrosis              | Moderate             |
|   |                 | Pigmentation          | Mild                 |
| Note: NECROSIS  | TGLs = 3-1.1    |                       |                      |
| Note: TALL CILIATED CELLS LINE BRONCHIOLES. MUCINOUS MATERIAL |                 |                       |                      |
| Lymph Node  | Mesenteric      | Infiltration Cellular | Histiocyte, Moderate |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 225 | <b>TRT#:</b> 3               | <b>SEX:</b> Male      | <b>DAY ON TEST:</b> 612 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                     |                           |                      |                |
|-------------------------------------|---------------------------|----------------------|----------------|
|                                     | Mediastinal               | Leukemia Mononuclear |                |
|                                     | Mesenteric                | Pigmentation         | Mild           |
| Note: LEUKEMIA MONUC                | TGLs = 2-2                |                      |                |
| Note: INFILTRAT CELL                | TGLs = 8-8                |                      |                |
| Nose                                |                           | Inflammation         | Acute, Mild    |
| Pancreas                            | Acinus                    | Hyperplasia          | Mild           |
| Spleen                              |                           | Leukemia Mononuclear |                |
| [ Leukemia Mononuclear TGLS = 7-3 ] |                           |                      |                |
| Stomach                             | Forestomach               | Acanthosis           | Mild           |
|                                     | Glandular                 | Erosion              | Minimal        |
|                                     | Glandular                 | Hyperplasia          | Mild           |
|                                     | Glandular                 | Inflammation         | Acute, Minimal |
|                                     | Glandular                 | Metaplasia           | Minimal        |
|                                     | Glandular                 | Pigmentation         | Minimal        |
|                                     | Fat                       | Proliferation        | Minimal        |
| Testes                              | Bilateral, Interstit Cell | Adenoma              |                |
|                                     | Seminif Tub               | Atrophy              | Mild           |
| Note: ADENOMA                       | TGLs = 5-6,6-6            |                      |                |
| Thyroid Gland                       | C Cell                    | Adenoma              |                |
| PRIMARY CAUSE OF DEATH              | -                         |                      |                |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 226

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 740

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Bone                      | Brain                   | Epididymis               | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            | Nose                    |
| Pancreas                  | Parathyroid Gland       | Preputial Gland          | Prostate                |
| Salivary Glands           | Seminal Vesicle         | Skin                     | Thyroid Gland           |
| Trachea                   | Urinary Bladder         |                          |                         |

**OBSERVATIONS**

|   |                |                              |                        |
|---|----------------|------------------------------|------------------------|
| Adrenal Gland   | Cortex         | Hyperplasia                  | Mild                   |
|   | Medulla        | Hyperplasia                  | Mild                   |
| Bone Marrow   |                | Pigmentation                 | Minimal                |
| Heart   |                | Cardiomyopathy               | Mild                   |
| Intestine Small   | Duodenum       | Pigmentation                 | Minimal                |
| Kidney  |                | Nephropathy                  | Mild                   |
|   | Renal Tubule   | Pigmentation                 | Minimal                |
| Liver   |                | Basophilic Focus             |                        |
|   |                | Clear Cell Focus             |                        |
|   |                | Mixed Cell Focus             |                        |
|   |                | Pigmentation                 | Minimal                |
| <p>Note: MIXED CL FOCUS TGLs = 1-3<br/>         Note: CLEAR CL FOCUS TGLs = 2-3<br/>         Note: SUGGESTION OF NEOPLASTIC NODULE IN SECTION CIRCLED</p> |                |                              |                        |
| Lung  |                | Alveolar/Bronchiolar Adenoma |                        |
|   | Alveolar Epith | Hyperplasia                  | Mild                   |
|   |                | Infiltration Cellular        | Histiocyte, Mild       |
|   |                | Inflammation                 | Granulomatous, Minimal |
|   |                | Pigmentation                 | Minimal                |
|   |                |                              |                        |
|   |                |                              |                        |
| [ Infiltration Cellular TGLS = 3-1+2 ]  |                |                              |                        |
| Lymph Node  | Mandibular     | Infiltration Cellular        | Histiocyte, Mild       |
|   | Mediastinal    | Infiltration Cellular        | Histiocyte, Mild       |
|   | Mesenteric     | Infiltration Cellular        | Histiocyte, Moderate   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 226      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 740  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                 |                           |                       |                   |
|---------------------------------|---------------------------|-----------------------|-------------------|
|                                 | Mandibular                | Pigmentation          | Minimal           |
|                                 | Mediastinal               | Pigmentation          | Minimal           |
|                                 | Mesenteric                | Pigmentation          | Mild              |
| Note: INFILTRAT CELL TGLs = 7-8 |                           |                       |                   |
| Pituitary Gland                 | Pars Distalis             | Adenoma               | Multiple          |
| Note: ADENOMA TGLs = 8-8        |                           |                       |                   |
| Spleen                          |                           | Infiltration Cellular | Histiocyte, Mild  |
|                                 |                           | Pigmentation          | Hemosiderin, Mild |
|                                 |                           | Pigmentation          | Mild              |
| Stomach                         | Forestomach               | Acanthosis            | Mild              |
|                                 | Glandular                 | Fibrosis              | Mild              |
|                                 | Forestomach               | Hyperkeratosis        | Moderate          |
|                                 | Glandular                 | Hyperplasia           | Minimal           |
|                                 | Fat                       | Proliferation         | Mild              |
| Note: HYPERKERATOSIS TGLs = 9-7 |                           |                       |                   |
| Testes                          | Bilateral, Interstit Cell | Adenoma               |                   |
|                                 | Seminif Tub               | Atrophy               | Mild              |
|                                 | Interstit Cell            | Hyperplasia           | Minimal           |
| Note: ADENOMA TGLs = 4-6        |                           |                       |                   |
| Thymus                          |                           | Depletion Lymphoid    | Mild              |
|                                 |                           | Pigmentation          | Minimal           |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 228

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 251

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Epididymis                 | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Pancreas                  |
| Pituitary Gland          | Preputial Gland            | Prostate                | Salivary Glands           |
| Seminal Vesicle          | Skin                       | Stomach - Forestomach   | Stomach - Glandular       |
| Testes                   | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**MISSING**

|           |                         |                   |
|-----------|-------------------------|-------------------|
| Esophagus | Lymph Node - Mandibular | Parathyroid Gland |
|-----------|-------------------------|-------------------|

**OBSERVATIONS**

|  |            |                       |                     |
|--|------------|-----------------------|---------------------|
| Heart                                  |            | Cardiomyopathy        | Minimal             |
| Note: CARDIOMYOPATHY TGLs = 8-2        |            |                       |                     |
| Kidney                                 | Papilla    | Mineralization        | Minimal             |
| Liver                                  |            | Pigmentation          | Minimal             |
| Lung                                   |            | Congestion            | Moderate            |
|  |            | Edema                 | Mild                |
|  |            | Infiltration Cellular | Histiocyte, Mild    |
|  |            | Inflammation          | Acute, Minimal      |
|  |            | Inflammation          | Granulomatous, Mild |
|  |            | Pigmentation          | Mild                |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES |            |                       |                     |
| [ Edema TGLS = 3-1+2 ]                 |            |                       |                     |
| [ Infiltration Cellular TGLS = 2-1+2 ] |            |                       |                     |
| [ Pigmentation TGLS = 1-1+2 ]          |            |                       |                     |
| Lymph Node                             | Mesenteric | Pigmentation          | Mild                |
| Spleen                                 |            | Depletion Lymphoid    | Mild                |
|  |            | Pigmentation          | Hemosiderin, Mild   |
| Note: DEPLET LYMPH TGLs = 4-3          |            |                       |                     |
| Thymus                                 |            | Pigmentation          | Minimal             |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 228

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 251

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 229

TRT#: 3

SEX: Male

DAY ON TEST: 229

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Eye                        |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Liver                   | Lymph Node - Mandibular   | Lymph Node - Mesenteric  | Mammary Gland              |
| Nose                    | Pancreas                  | Pituitary Gland          | Preputial Gland            |
| Prostate                | Salivary Glands           | Seminal Vesicle          | Skin                       |
| Stomach - Forestomach   | Testes                    | Thymus                   | Thyroid Gland              |
| Trachea                 | Urinary Bladder           |                          |                            |

MISSING

Parathyroid Gland

OBSERVATIONS

|  |           |                       |                     |
|--|-----------|-----------------------|---------------------|
| Heart  |           | Cardiomyopathy        | Mild                |
| Lung   |           | Congestion            | Moderate            |
|  |           | Edema                 | Mild                |
|  |           | Infiltration Cellular | Histiocyte, Mild    |
|  |           | Inflammation          | Granulomatous, Mild |
|  |           | Pigmentation          | Mild                |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES<br>[ Edema TGLS = 4-2 ] |           |                       |                     |
| Mesentery  | Fat       | Necrosis              | Mild                |
| Note: NECROSIS TGLs = 2-10                                     |           |                       |                     |
| Spleen   |           | Depletion Lymphoid    | Mild                |
| Note: DEPLET LYMPH TGLs = 6-3                                  |           |                       |                     |
| Stomach  | Glandular | Erosion               | Mild                |
|  | Glandular | Hemorrhage            | Minimal             |
|  | Glandular | Inflammation          | Acute, Mild         |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 230

TRT#: 3

SEX: Male

DAY ON TEST: 612

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Brain                   | Epididymis               |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Pancreas                 |
| Parathyroid Gland       | Preputial Gland           | Prostate                | Salivary Glands          |
| Seminal Vesicle         | Skin                      | Trachea                 | Urinary Bladder          |

MISSING

|                         |               |
|-------------------------|---------------|
| Adrenal Gland - Medulla | Mammary Gland |
|-------------------------|---------------|

OBSERVATIONS

|                 |              |                  |                     |
|-----------------|--------------|------------------|---------------------|
| Bone Marrow     |              | Pigmentation     | Minimal             |
| Heart           |              | Cardiomyopathy   | Mild                |
| Intestine Small | Duodenum     | Pigmentation     | Minimal             |
| Kidney          | Papilla      | Mineralization   | Minimal             |
|                 |              | Nephropathy      | Minimal             |
|                 | Renal Tubule | Pigmentation     | Minimal             |
| Liver           |              | Basophilic Focus |                     |
|                 |              | Fatty Change     | Focal, Mild         |
|                 |              | Inflammation     | Granulomatous, Mild |
|                 |              | Mixed Cell Focus |                     |
|                 |              | Pigmentation     | Minimal             |

Note: INFLAMMATION TGLs = 8-3

Note: NODULE WITHIN NODULE IN SECTION NUMBERED #2

|            |             |                       |                      |
|------------|-------------|-----------------------|----------------------|
| Lung       |             | Infiltration Cellular | Histiocyte, Mild     |
|            |             | Inflammation          | Granulomatous, Mild  |
|            |             | Pigmentation          | Minimal              |
| Lymph Node | Mandibular  | Degeneration          | Cystic, Moderate     |
|            | Mediastinal | Infiltration Cellular | Histiocyte, Minimal  |
|            | Mesenteric  | Infiltration Cellular | Histiocyte, Moderate |
|            | Mesenteric  | Infiltration Cellular | Mast Cell, Mild      |
|            | Mesenteric  | Pigmentation          | Mild                 |

Note: DEGEN TGLs = 3-9

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 230      **TRT#:** 3      **SEX:** Male      **DAY ON TEST:** 612  
**DOSE:** 0.05 G/KG 79 HM      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                           |                                  |                  |
|--|---------------------------|----------------------------------|------------------|
| Note: INFILTRAT CELL    TGLs = 4-2,6-8 |                           |                                  |                  |
| Nose                                   |                           | Erosion                          | Minimal          |
|  |                           | Inflammation                     | Acute, Moderate  |
| Note: PLANT MATERIAL IN NASAL CAVITY   |                           |                                  |                  |
| Pituitary Gland                        | Pars Distalis             | Adenoma                          |                  |
| Spleen                                 |                           | Hematopoietic Cell Proliferation | Minimal          |
|  |                           | Infiltration Cellular            | Histiocyte, Mild |
|  |                           | Pigmentation                     | Minimal          |
| Stomach                                | Forestomach               | Acanthosis                       | Mild             |
|  | Glandular                 | Erosion                          | Mild             |
|  | Glandular                 | Fibrosis                         | Mild             |
|  | Glandular                 | Hemorrhage                       | Mild             |
|  | Forestomach               | Hyperkeratosis                   | Minimal          |
|  | Glandular                 | Hyperplasia                      | Mild             |
|  | Glandular                 | Metaplasia                       | Mild             |
| Note: AREAS OF INTESTINAL METAPLASIA   |                           |                                  |                  |
| Note: ACANTHOSIS    TGLs = 9-6         |                           |                                  |                  |
| Testes                                 | Bilateral, Interstit Cell | Adenoma                          |                  |
|  | Seminif Tub               | Atrophy                          | Mild             |
|  | Interstit Cell            | Hyperplasia                      | Mild             |
| Note: ADENOMA    TGLs = 5-6            |                           |                                  |                  |
| Thymus                                 |                           | Pigmentation                     | Minimal          |
| Thyroid Gland                          | C Cell                    | Adenoma                          |                  |
| PRIMARY CAUSE OF DEATH                 | -                         |                                  |                  |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 233

TRT#: 3

SEX: Male

DAY ON TEST: 647

DOSE: 0.05 G/KG 79 HM

DISP: Moribund

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Epididymis               | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Pancreas                |
| Parathyroid Gland        | Preputial Gland         | Prostate                | Salivary Glands         |
| Seminal Vesicle          | Skin                    | Thymus                  | Urinary Bladder         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                  |               |                                  |                     |
|----------------------------------|---------------|----------------------------------|---------------------|
| Bone Marrow                      |               | Pigmentation                     | Minimal             |
| Heart                            |               | Cardiomyopathy                   | Mild                |
| Intestine Small                  | Duodenum      | Pigmentation                     | Minimal             |
|                                  | Jejunum       | Pigmentation                     | Minimal             |
| Kidney                           |               | Nephropathy                      | Minimal             |
| Liver                            |               | Basophilic Focus                 |                     |
|                                  |               | Eosinophilic Focus               |                     |
|                                  |               | Pigmentation                     | Minimal             |
| Lung                             |               | Hemorrhage                       | Mild                |
|                                  |               | Infiltration Cellular            | Histiocyte, Minimal |
|                                  |               | Inflammation                     | Acute, Moderate     |
|                                  |               | Pigmentation                     | Minimal             |
| Note: MORE LIKE BRONCHOPNEUMONIA |               |                                  |                     |
| Lymph Node                       | Mandibular    | Infiltration Cellular            | Histiocyte, Minimal |
|                                  | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                                  | Mandibular    | Pigmentation                     | Minimal             |
|                                  | Mesenteric    | Pigmentation                     | Mild                |
| Nose                             |               | Inflammation                     | Acute, Marked       |
| Note: PLANT MATERIAL IN NOSE     |               |                                  |                     |
| Pituitary Gland                  | Pars Distalis | Adenoma                          |                     |
| Spleen                           |               | Hematopoietic Cell Proliferation | Mild                |
|                                  |               | Infiltration Cellular            | Histiocyte, Mild    |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 233

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 647

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                           |               |                   |
|------------------------|---------------------------|---------------|-------------------|
|                        |                           | Pigmentation  | Mild              |
|                        |                           | Pigmentation  | Hemosiderin, Mild |
| Stomach                | Forestomach               | Acanthosis    | Minimal           |
|                        | Glandular                 | Erosion       | Minimal           |
|                        | Glandular                 | Hyperplasia   | Minimal           |
|                        | Glandular                 | Metaplasia    | Minimal           |
|                        | Glandular                 | Pigmentation  | Minimal           |
|                        | Fat                       | Proliferation | Minimal           |
| Testes                 | Bilateral, Interstit Cell | Adenoma       |                   |
|                        | Seminif Tub               | Atrophy       | Mild              |
| [ Atrophy TGLS = 1-6 ] |                           |               |                   |
| Thyroid Gland          | C Cell                    | Adenoma       |                   |
| Trachea                |                           | Erosion       | Mild              |
|                        |                           | Inflammation  | Acute, Mild       |
|                        |                           | Metaplasia    | Squamous, Minimal |
|                        |                           | Pigmentation  | Minimal           |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 234

TRT#: 3

SEX: Male

DAY ON TEST: 68

DOSE: 0.05 G/KG 79 HM

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Epididymis                | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Liver                   | Lymph Node - Mandibular   | Lymph Node - Mesenteric  | Pancreas                   |
| Parathyroid Gland       | Pituitary Gland           | Prostate                 | Salivary Glands            |
| Seminal Vesicle         | Skin                      | Stomach - Forestomach    | Testes                     |
| Thymus                  | Thyroid Gland             | Trachea                  |                            |

MISSING

|               |      |                 |
|---------------|------|-----------------|
| Mammary Gland | Nose | Preputial Gland |
|---------------|------|-----------------|

OBSERVATIONS

|      |              |                        |
|------|--------------|------------------------|
| Lung | Congestion   | Moderate               |
|      | Edema        | Mild                   |
|      | Hemorrhage   | Mild                   |
|      | Inflammation | Granulomatous, Minimal |
|      | Pigmentation | Minimal                |

Note: MUCINOUS MATERIAL IN BRONCHIOLES

[ Hemorrhage TGLS = 2-1+2 ]

|                 |                                 |         |
|-----------------|---------------------------------|---------|
| Spleen          | Depletion Lymphoid              | Mild    |
| Stomach         | Hemorrhage                      | Minimal |
| Urinary Bladder | Calculus Gross Observation      |         |
|                 | Calculus Micro Observation Only |         |

Note: CALCUS MIC OBS TGLs = 1-9

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 235

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Brain                    |
| Epididymis                 | Esophagus               | Heart                     | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Nose                    | Pancreas                  | Parathyroid Gland        |
| Preputial Gland            | Prostate                | Salivary Glands           | Seminal Vesicle          |
| Skin                       | Trachea                 | Urinary Bladder           |                          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                      |               |                         |                      |
|--------------------------------------|---------------|-------------------------|----------------------|
| Bone Marrow                          |               | Pigmentation            | Minimal              |
| Intestine Large                      | Cecum         | Pigmentation            | Minimal              |
|                                      | Colon         | Pigmentation            | Minimal              |
| Kidney                               |               | Nephropathy             | Mild                 |
|                                      | Renal Tubule  | Pigmentation            | Mild                 |
| Liver                                |               | Basophilic Focus        |                      |
|                                      |               | Eosinophilic Focus      |                      |
|                                      |               | Inflammation            | Granulomatous, Mild  |
|                                      |               | Necrosis                | Minimal              |
|                                      |               | Pigmentation            | Mild                 |
| Note: [ EOSIN FOCUS ] TGLs = 5,6-3.1 |               |                         |                      |
| Lung                                 |               | Infiltration Cellular   | Histiocyte, Mild     |
|                                      |               | Pigmentation            | Minimal              |
| Note: INFILTRAT CELL TGLs = 4-1+2    |               |                         |                      |
| Lymph Node                           | Mediastinal   | Infiltration Cellular   | Histiocyte, Minimal  |
|                                      | Mesenteric    | Infiltration Cellular   | Histiocyte, Moderate |
|                                      | Mediastinal   | Pigmentation            | Minimal              |
|                                      | Mesenteric    | Pigmentation            | Mild                 |
| Pharynx                              | Palate        | Squamous Cell Papilloma |                      |
| Note: PAPHILLOMA SQUA TGLs = 3-13    |               |                         |                      |
| Pituitary Gland                      | Pars Distalis | Hyperplasia             | Moderate             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 235 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |  |   |   |
|---------------|--|---|---|
| Spleen        |  | Infiltration Cellular<br>Pigmentation<br>Pigmentation                 | Histiocyte, Mild<br>Hemosiderin, Mild<br>Mild |
| Stomach       | Forestomach<br>Glandular<br>Glandular<br>Glandular<br>Fat  | Acanthosis<br>Fibrosis<br>Metaplasia<br>Pigmentation<br>Proliferation | Mild<br>Mild<br>Minimal<br>Minimal<br>Minimal |
| Testes        | Bilateral, Interstit Cell<br>Seminif Tub<br>Interstit Cell | Adenoma<br>Atrophy<br>Hyperplasia                                     | <br>Mild<br>Mild                              |
| Note: ADENOMA | TGLs = 1-6,2-6   |   |   |
| Thymus        |  | Pigmentation  | Minimal                                       |
| Thyroid Gland | C Cell   | Hyperplasia   | Minimal                                       |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 236

TRT#: 3

SEX: Male

DAY ON TEST: 739

DOSE: 0.05 G/KG 79 HM

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Epididymis  
Intestine Large - Rectum  
Mammary Gland  
Skin

Adrenal Gland - Medulla  
Esophagus  
Intestine Small - Ileum  
Parathyroid Gland  
Trachea

Bone  
Intestine Large - Cecum  
Intestine Small - Jejunum  
Preputial Gland  
Urinary Bladder

Brain  
Intestine Large - Colon  
Islets, Pancreatic  
Seminal Vesicle

**MISSING**

Lymph Node - Mandibular

Salivary Glands

**OBSERVATIONS**

Bone Marrow  
Heart  
Intestine Small  
Kidney

Duodenum  
Papilla

Renal Tubule

Liver

Lung

Note: MUCINOUS MATERIAL IN A BRONCHIOLE

Note: INFILTRAT CELL TGLs = 1-1+2

Lymph Node

Mesenteric  
Mesenteric

Note: INFILTRAT CELL TGLs = 4-8,5-8

Nose

Pancreas

Acinus

Pituitary Gland

Pars Distalis  
Pars Distalis

Pigmentation  
Cardiomyopathy  
Pigmentation  
Mineralization  
Nephropathy  
Pigmentation  
Basophilic Focus  
Eosinophilic Focus  
Inflammation  
Pigmentation  
Infiltration Cellular  
Pigmentation

Mild  
Mild  
Minimal  
Minimal  
Mild  
Mild  
Granulomatous, Mild  
Minimal  
Histiocyte, Mild  
Minimal

Infiltration Cellular  
Pigmentation

Histiocyte, Moderate  
Mild

Fungus  
Inflammation  
Hyperplasia  
Cyst  
Hyperplasia

Mild  
Acute, Mild  
Mild  
Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 236 | <b>TRT#:</b> 3               | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 739 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HM | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                     |                           |                       |                   |
|-------------------------------------|---------------------------|-----------------------|-------------------|
| Note: [ HYPERPLASIA ] TGLs = 7-8    |                           |                       |                   |
| Prostate                            | Epithelium                | Hyperplasia           | Moderate          |
| Note: MORE LIKE A MICROADENOMA      |                           |                       |                   |
| Spleen                              |                           | Infiltration Cellular | Histiocyte, Mild  |
|                                     |                           | Pigmentation          | Hemosiderin, Mild |
|                                     |                           | Pigmentation          | Mild              |
| Stomach                             | Glandular                 | Fibrosis              | Mild              |
|                                     | Forestomach               | Hyperkeratosis        | Mild              |
|                                     | Glandular                 | Metaplasia            | Mild              |
|                                     | Glandular                 | Pigmentation          | Minimal           |
|                                     | Fat                       | Proliferation         | Minimal           |
| Note: HYPERKERATOSIS TGLs = 6-7+7.1 |                           |                       |                   |
| Testes                              | Bilateral, Interstit Cell | Adenoma               |                   |
|                                     | Seminif Tub               | Atrophy               | Mild              |
|                                     | Interstit Cell            | Hyperplasia           | Minimal           |
| Note: ADENOMA TGLs = 2-6,3-6        |                           |                       |                   |
| Thymus                              |                           | Pigmentation          | Mild              |
| Thyroid Gland                       | C Cell                    | Adenoma               |                   |
|                                     | C Cell                    | Hyperplasia           | Mild              |
| PRIMARY CAUSE OF DEATH              | -                         |                       |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 240

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 467

**DOSE:** 0.05 G/KG 79 HM

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                          |                            |
|-------------------------|-------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone                     | Bone Marrow                |
| Brain                   | Epididymis              | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Duodenum |
| Islets, Pancreatic      | Kidney                  | Lymph Node - Mandibular  | Mammary Gland              |
| Nose                    | Pancreas                | Parathyroid Gland        | Pituitary Gland            |
| Preputial Gland         | Prostate                | Salivary Glands          | Seminal Vesicle            |
| Skin                    | Spleen                  | Thymus                   | Thyroid Gland              |
| Trachea                 | Urinary Bladder         |                          |                            |

**OBSERVATIONS**

|                                 |                           |                            |                  |
|---------------------------------|---------------------------|----------------------------|------------------|
| Intestine Small                 | Ileum, Lymphoid Tiss      | Hyperplasia                | Mild             |
|                                 | Jejunum, Lymphoid Tiss    | Hyperplasia                | Mild             |
| Note: HYPERPLASIA TGLs = 2-7    |                           |                            |                  |
| Liver                           |                           | Basophilic Focus           |                  |
|                                 |                           | Fatty Change               | Focal, Minimal   |
|                                 |                           | Hepatodiaphragmatic Nodule |                  |
| Note: ANOM HEPAT LOB TGLs = 5-3 |                           |                            |                  |
| Lung                            |                           | Edema                      | Minimal          |
|                                 |                           | Pigmentation               | Mild             |
| Lymph Node                      | Mesenteric                | Infiltration Cellular      | Histiocyte, Mild |
|                                 | Pancreatic                | Infiltration Cellular      | Histiocyte, Mild |
| Note: INFILTRAT CELL TGLs = 4-9 |                           |                            |                  |
| Stomach                         | Forestomach               | Acanthosis                 | Mild             |
|                                 | Forestomach               | Hyperkeratosis             | Mild             |
|                                 | Glandular                 | Metaplasia                 | Minimal          |
| Testes                          | Bilateral, Interstit Cell | Adenoma                    |                  |
|                                 | Interstit Cell            | Hyperplasia                | Mild             |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                     |  |   |  |
|---------------------|--|---|--|
| <b>ANIMAL ID:</b> 1 | <b>TRT#:</b> 4<br><b>DOSE:</b> VEHICLE 79 VF | <b>SEX:</b> Female<br><b>DISP:</b> Moribund | <b>DAY ON TEST:</b> 694<br><b>HISTO:</b> |
|---------------------|--|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric |
| Nose                      | Pancreas                 | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Trachea                 |
| Urinary Bladder           | Uterus                   |                            |                         |

**OBSERVATIONS**

|  |                |                                       |   |
|--|----------------|---------------------------------------|---|
| Clitoral Gland<br>[ Necrosis TGLS = 2-10 ]         |                | Necrosis                              | Moderate                                  |
| Kidney   | Renal Tubule   | Nephropathy<br>Pigmentation           | Minimal<br>Mild                           |
| Liver<br><br>Note: BASOPH FOCUS TGLs = 9-3         |                | Basophilic Focus<br>Fatty Change      | Focal, Mild                               |
| Lung   | Alveolar Epith | Hyperplasia                           | Mild                                      |
| Lymph Node   | Mediastinal    | Infiltration Cellular                 | Histiocyte, Mild                          |
| Mammary Gland<br>[ Fibroadenoma TGLS = 1-13+13.1 ] |                | Fibroadenoma                          |   |
| Ovary<br>[ Cyst TGLS = 5-6 ]                       |                | Cyst                                  |   |
| Pituitary Gland<br>Note: ADENOMA TGLs = 8-8        | Pars Distalis  | Adenoma                               |   |
| Spleen   |                | Infiltration Cellular<br>Pigmentation | Histiocyte, Moderate<br>Hemosiderin, Mild |
| Thymus   |                | Cyst                                  |   |
| Thyroid Gland                                      | C Cell         | Hyperplasia                           | Minimal                                   |

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 2                      **TRT#:** 4                      **SEX:** Female                      **DAY ON TEST:** 743  
**DOSE:** VEHICLE 79 VF                      **DISP:** Terminal Sacrifice                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland            | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           |
| Nose                      | Ovary                    | Pancreas                   | Parathyroid Gland       |
| Salivary Glands           | Skin                     | Stomach - Forestomach      | Stomach - Glandular     |
| Thymus                    | Trachea                  | Urinary Bladder            | Uterus                  |

**OBSERVATIONS**

|  |               |                         |                     |
|--|---------------|-------------------------|---------------------|
| Adrenal Gland                          | Medulla       | Pheochromocytoma Benign |                     |
| Kidney                                 | Renal Tubule  | Pigmentation            | Mild                |
| Liver                                  |               | Basophilic Focus        |                     |
|  | Bile Duct     | Hyperplasia             | Mild                |
|  |               | Necrosis                | Minimal             |
|  |               | Pigmentation            | Mild                |
| Note: PIGMENT      TGLs = 4-3          |               |                         |                     |
| Note: GRANULOMAS AND YELLOW PIGMENT    |               |                         |                     |
| Lung                                   |               | Atelectasis             | Minimal             |
|  |               | Infiltration Cellular   | Histiocyte, Minimal |
| [ Infiltration Cellular TGLS = 1-1+2 ] |               |                         |                     |
| Lymph Node                             | Mesenteric    | Infiltration Cellular   | Histiocyte, Mild    |
|  | Mesenteric    | Pigmentation            | Mild                |
| Note: INFILTRAT CELL      TGLs = 3-8   |               |                         |                     |
| Pituitary Gland                        | Pars Distalis | Hyperplasia             | Mild                |
| Spleen                                 |               | Infiltration Cellular   | Histiocyte, Mild    |
|  |               | Pigmentation            | Hemosiderin, Mild   |
| Thymus                                 |               |                         |                     |
| Note: PIGMENT STAINS DEEP YELLOW       |               |                         |                     |
| Thyroid Gland                          | C Cell        | Hyperplasia             | Mild                |

**PRIMARY CAUSE OF DEATH**                      -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                     |                            |                                 |                         |
|---------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 3 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 743 |
|                     | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                            |                         |                           |
|-------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla    | Bone                    | Brain                     |
| Esophagus               | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Lymph Node - Mandibular | Mammary Gland              | Nose                    | Pancreas                  |
| Parathyroid Gland       | Salivary Glands            | Skin                    | Stomach - Glandular       |
| Thymus                  | Thyroid Gland              | Trachea                 | Urinary Bladder           |
| Uterus                  |                            |                         |                           |

**MISSING**

Islets, Pancreatic

**OBSERVATIONS**

|                      |                |                       |                     |
|----------------------|----------------|-----------------------|---------------------|
| Clitoral Gland       |                | Adenoma               |                     |
| Note: ADENOMA        | TGLs = 1-10    |                       |                     |
| Heart                |                | Cardiomyopathy        | Minimal             |
| Kidney               |                | Nephropathy           | Minimal             |
|                      | Renal Tubule   | Pigmentation          | Mild                |
| Liver                |                | Fatty Change          | Diffuse, Mild       |
|                      |                | Leukemia Mononuclear  |                     |
| Note: FATTY CHANGE   | TGLs = 8-3     |                       |                     |
| Lung                 |                | Infiltration Cellular | Histiocyte, Minimal |
|                      |                | Leukemia Mononuclear  |                     |
|                      |                | Pigmentation          | Minimal             |
| Note: LEUKEMIA MONUC | TGLs = 2-1+2   |                       |                     |
| Lymph Node           | Mediastinal    | Infiltration Cellular | Histiocyte, Mild    |
|                      | Mesenteric     | Infiltration Cellular | Histiocyte, Mild    |
|                      | Pancreatic     | Infiltration Cellular | Histiocyte, Mild    |
| Note: INFILTRAT CELL | TGLs = 4-9,5-8 |                       |                     |
| Pituitary Gland      | Pars Distalis  | Angiectasis           | Mild                |
|                      | Pars Distalis  | Hyperplasia           | Mild                |
| Note: ANGIECTASIS    | TGLs = 9-8     |                       |                     |
| Spleen               |                | Infiltration Cellular | Histiocyte, Minimal |
|                      |                | Leukemia Mononuclear  |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                     |  |   |  |
|---------------------|--|---|--|
| <b>ANIMAL ID:</b> 3 | <b>TRT#:</b> 4<br><b>DOSE:</b> VEHICLE 79 VF | <b>SEX:</b> Female<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 743<br><b>HISTO:</b> |
|---------------------|--|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                      |             |                |         |
|--------------------------------------|-------------|----------------|---------|
| [ Infiltration Cellular TGLS = 3-3 ] |             |                |         |
| Stomach                              | Forestomach | Acanthosis     | Mild    |
|                                      | Forestomach | Hyperkeratosis | Minimal |
|                                      | Forestomach | Necrosis       | Mild    |

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|                               |   |
|-------------------------------|---|
| <b>PRIMARY CAUSE OF DEATH</b> | - |
|-------------------------------|---|

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 4                      **TRT#:** 4                      **SEX:** Female                      **DAY ON TEST:** 743  
**DOSE:** VEHICLE 79 VF                      **DISP:** Terminal Sacrifice                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Nose                    | Pancreas                  |
| Parathyroid Gland        | Salivary Glands            | Skin                    | Stomach - Forestomach     |
| Stomach - Glandular      | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          | Uterus                     |                         |                           |

**OBSERVATIONS**

|  |              |                                  |                     |
|--|--------------|----------------------------------|---------------------|
| Adrenal Gland                              | Medulla      | Hyperplasia                      | Minimal             |
| Heart                                      |              | Cardiomyopathy                   | Mild                |
| Kidney                                     | Renal Tubule | Pigmentation                     | Minimal             |
| Liver                                      |              | Basophilic Focus                 |                     |
|  | Bile Duct    | Hyperplasia                      | Mild                |
| Note: BASOPH FOCUS    TGLs = 3-1+3,4-1,5-3 |              |                                  |                     |
| Lymph Node                                 | Mandibular   | Infiltration Cellular            | Histiocyte, Minimal |
|  | Mesenteric   | Infiltration Cellular            | Histiocyte, Minimal |
| Mammary Gland                              |              | Fibroadenoma                     |                     |
| [ Fibroadenoma TGLS = 1-13+13.1 ]          |              |                                  |                     |
| Ovary                                      |              | Cyst                             |                     |
| Note: CYST            TGLs = 2-6           |              |                                  |                     |
| Pituitary Gland                            |              | Cyst                             |                     |
| Note: [ CYST        ] TGLs = 6-8           |              |                                  |                     |
| Spleen                                     |              | Hematopoietic Cell Proliferation | Minimal             |
|  |              | Infiltration Cellular            | Histiocyte, Mild    |
|  |              | Pigmentation                     | Hemosiderin, Mild   |

PRIMARY CAUSE OF DEATH                      -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                     |                            |                                 |                         |
|---------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 5 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                     | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Bone                     | Bone Marrow                | Brain                   | Clitoral Gland            |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    | Urinary Bladder         | Uterus                    |

**MISSING**

|                        |                         |
|------------------------|-------------------------|
| Adrenal Gland - Cortex | Adrenal Gland - Medulla |
|------------------------|-------------------------|

**OBSERVATIONS**

|  |               |                                  |                      |
|--|---------------|----------------------------------|----------------------|
| Kidney   |               | Nephropathy                      | Minimal              |
|  | Renal Tubule  | Pigmentation                     | Mild                 |
| Liver  |               | Basophilic Focus                 |                      |
|  | Bile Duct     | Hyperplasia                      | Mild                 |
|  |               | Mixed Cell Focus                 |                      |
| Note: [ BASOPH FOCUS ] TGLs = 2-3+3.1<br>Note: [ MIXED CL FOCUS ] TGLs = 1-3.1 |               |                                  |                      |
| Lung   |               | Infiltration Cellular            | Histiocyte, Minimal  |
| Lymph Node   | Mediastinal   | Infiltration Cellular            | Histiocyte, Mild     |
|  | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild     |
|  | Mediastinal   | Pigmentation                     | Mild                 |
| Pituitary Gland  | Pars Distalis | Adenoma                          | Multiple             |
| Note: ADENOMA TGLs = 3-8   |               |                                  |                      |
| Spleen   |               | Hematopoietic Cell Proliferation | Minimal              |
|  |               | Infiltration Cellular            | Histiocyte, Moderate |
|  |               | Pigmentation                     | Hemosiderin, Mild    |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                     |  |   |  |
|---------------------|--|---|--|
| <b>ANIMAL ID:</b> 6 | <b>TRT#:</b> 4<br><b>DOSE:</b> VEHICLE 79 VF | <b>SEX:</b> Female<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 749<br><b>HISTO:</b> |
|---------------------|--|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Nose                       | Ovary                   | Parathyroid Gland         |
| Salivary Glands          | Skin                       | Stomach - Forestomach   | Stomach - Glandular       |
| Thymus                   | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**OBSERVATIONS**

|                                      |               |                         |                     |
|--------------------------------------|---------------|-------------------------|---------------------|
| Adrenal Gland                        | Medulla       | Pheochromocytoma Benign |                     |
| Heart                                |               | Cardiomyopathy          | Mild                |
| [ Cardiomyopathy TGLS = 6-2 ]        |               |                         |                     |
| Kidney                               |               | Nephropathy             | Minimal             |
| Liver                                |               | Basophilic Focus        |                     |
| Note: BASOPH FOCUS TGLs = 4-3        |               |                         |                     |
| Lung                                 |               | Infiltration Cellular   | Histiocyte, Mild    |
| [ Infiltration Cellular TGLS = 2-1 ] |               |                         |                     |
| Lymph Node                           | Mandibular    | Infiltration Cellular   | Histiocyte, Minimal |
|                                      | Mesenteric    | Infiltration Cellular   | Histiocyte, Mild    |
| Mammary Gland                        |               | Fibroadenoma            |                     |
| [ Fibroadenoma TGLS = 1-13 ]         |               |                         |                     |
| Pancreas                             | Acinus        | Hyperplasia             | Mild                |
| Pituitary Gland                      | Pars Distalis | Adenoma                 |                     |
|                                      | Pars Distalis | Angiectasis             | Mild                |
| Note: ADENOMA TGLs = 5-8             |               |                         |                     |
| Spleen                               |               | Infiltration Cellular   | Histiocyte, Mild    |
| Uterus                               |               | Adenoma                 |                     |
|                                      |               | Polyp Stromal           |                     |
| Note: POLYP STROMAL TGLs = 3-6       |               |                         |                     |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 7                      **TRT#:** 4                      **SEX:** Female                      **DAY ON TEST:** 700  
**DOSE:** VEHICLE 79 VF                      **DISP:** Dead                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mesentery               | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Pituitary Gland           |
| Salivary Glands          | Skin                       | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    |                         |                           |

**MISSING**

Adrenal Gland - Medulla

**OBSERVATIONS**

|  |             |                                  |                      |
|--|-------------|----------------------------------|----------------------|
| Heart  |             | Bacterium                        | Minimal              |
|  |             | Cardiomyopathy                   | Mild                 |
| Kidney   |             | Bacterium                        | Moderate             |
|  |             | Inflammation                     | Chronic Active, Mild |
| Note: BACTERIAL CLUSTERS IN CORTEX, MEDULLA, AND GLOMERULI |             |                                  |                      |
| Liver  |             | Fatty Change                     | Diffuse, Mild        |
|  |             | Necrosis                         | Mild                 |
|  |             | Thrombosis                       | Minimal              |
| Note: FATTY CHANGE    TGLs = 7-3                           |             |                                  |                      |
| Lung   |             | Bacterium                        | Mild                 |
| Lymph Node   | Mesenteric  | Infiltration Cellular            | Histiocyte, Mild     |
| Mammary Gland  |             | Fibroadenoma                     | Multiple             |
| [ Fibroadenoma TGLS = 2-13,3-14 ]                          |             |                                  |                      |
| Spleen   |             | Hematopoietic Cell Proliferation | Moderate             |
| Note: HEMA CELL PROL    TGLs = 4-3.1                       |             |                                  |                      |
| Stomach  | Forestomach | Acanthosis                       | Mild                 |
|  | Forestomach | Hyperkeratosis                   | Moderate             |
| Note: HYPERKERATOSIS    TGLs = 10-6                        |             |                                  |                      |
| Urinary Bladder  |             | Hemorrhage                       | Mild                 |
| Note: HEMORRHAGE    TGLs = 5-9                             |             |                                  |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                     |                            |                    |                         |
|---------------------|----------------------------|--------------------|-------------------------|
| <b>ANIMAL ID:</b> 7 | <b>TRT#:</b> 4             | <b>SEX:</b> Female | <b>DAY ON TEST:</b> 700 |
|                     | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Dead  | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                              |               |
|------------------------------|---------------|
| Uterus                       | Polyp Stromal |
| [ Polyp Stromal TGLS = 9-6 ] |               |

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PRIMARY CAUSE OF DEATH -

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Animal Note: BACTEREMIA AND LEUCOCYTOSIS IN LUNG AND LIVER

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

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|                     |                            |                                 |                         |
|---------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 8 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 750 |
|                     | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric | Mammary Gland             |
| Nose                     | Ovary                      | Pancreas                | Parathyroid Gland         |
| Salivary Glands          | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    | Urinary Bladder         | Uterus                    |

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**OBSERVATIONS**

|  |               |                                  |                                     |
|--|---------------|----------------------------------|-------------------------------------|
| Adrenal Gland                                      | Medulla       | Hyperplasia                      | Minimal                             |
| Clitoral Gland                                     |               | Adenoma                          |                                     |
| Kidney   |               | Nephropathy                      | Moderate                            |
|  | Renal Tubule  | Pigmentation                     | Mild                                |
| Liver  |               | Basophilic Focus                 |                                     |
|  |               | Pigmentation                     | Mild                                |
| Lung   |               | Osteosarcoma                     | Metastatic (Uncertain Primary Site) |
| Note: OSTEOSARC TGLs = 2-1+2                       |               |                                  |                                     |
| Pituitary Gland                                    | Pars Distalis | Adenoma                          |                                     |
|  | Pars Distalis | Angiectasis                      | Mild                                |
| Note: ADENOMA TGLs = 3-8                           |               |                                  |                                     |
| Skin   |               | Basal Cell Carcinoma             |                                     |
| Note: EPITHELIOMA TO BE CONSIDERED.                |               |                                  |                                     |
| Note: BASAL CEL CARC TGLs = 1-13                   |               |                                  |                                     |
| Note: A FEW KERATIN PEARLS. POSSIBILITY OF TRICHO- |               |                                  |                                     |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild                                |
|  |               | Pigmentation                     | Hemosiderin, Mild                   |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                     |                            |                    |                         |
|---------------------|----------------------------|--------------------|-------------------------|
| <b>ANIMAL ID:</b> 9 | <b>TRT#:</b> 4             | <b>SEX:</b> Female | <b>DAY ON TEST:</b> 304 |
|                     | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Dead  | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    |
| Lymph Node - Mesenteric | Mammary Gland             | Ovary                    | Pancreas                   |
| Pituitary Gland         | Salivary Glands           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

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**MISSING**

|                   |        |
|-------------------|--------|
| Parathyroid Gland | Thymus |
|-------------------|--------|

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**OBSERVATIONS**

|                                  |        |                                  |                |
|----------------------------------|--------|----------------------------------|----------------|
| Kidney                           | Cortex | Mineralization                   | Minimal        |
| Liver                            |        | Hepatodiaphragmatic Nodule       |                |
| Note: ANOM HEPAT LOB TGLs = 2-3  |        |                                  |                |
| Lung                             |        | Edema                            | Mild           |
|                                  |        | Hemorrhage                       | Mild           |
| Note: EDEMA TGLs = 1-1+2         |        |                                  |                |
| Note: BLOOD IN A FEW BRONCHIOLES |        |                                  |                |
| Nose                             |        | Inflammation                     | Acute, Minimal |
| Spleen                           |        | Hematopoietic Cell Proliferation | Mild           |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 10

TRT#: 4

SEX: Female

DAY ON TEST: 744

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Skin                     | Stomach - Glandular        | Thymus                  | Thyroid Gland             |
| Trachea                  | Uterus                     |                         |                           |

MISSING

Clitoral Gland

OBSERVATIONS

|   |               |                      |          |
|---|---------------|----------------------|----------|
| Heart                                   |               | Cardiomyopathy       | Mild     |
| Kidney                                  | Papilla       | Mineralization       | Minimal  |
|   | Renal Tubule  | Pigmentation         | Mild     |
| Liver                                   |               | Basophilic Focus     |          |
|   | Bile Duct     | Hyperplasia          | Mild     |
|   |               | Leukemia Mononuclear |          |
| Lymph Node                              | Mesenteric    | Leukemia Mononuclear |          |
| Note: LEUKEMIA MONUC TGLs = 3-8         |               |                      |          |
| Mammary Gland                           |               | Fibroadenoma         | Multiple |
|   |               | Galactocele          |          |
| Note: [ FIBROADENOMA ] TGLs = 1,2-13+14 |               |                      |          |
| Pituitary Gland                         | Pars Distalis | Adenoma              |          |
|   | Pars Distalis | Hyperplasia          | Mild     |
|   |               | Leukemia Mononuclear |          |
| Note: ADENOMA TGLs = 4-8                |               |                      |          |
| Spleen                                  |               | Leukemia Mononuclear |          |
| Stomach                                 | Forestomach   | Acanthosis           | Moderate |
|   | Forestomach   | Hyperkeratosis       | Mild     |
|   | Forestomach   | Necrosis             | Minimal  |
| Note: EARLY SQUAMOUS CELL PAPILLOMA     |               |                      |          |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 10

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: ACANTHOSIS TGLs = 5-7

Urinary Bladder

Leukemia Mononuclear

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:27

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 12

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Lymph Node - Mandibular  | Lymph Node - Mesenteric    | Nose                    |
| Ovary                     | Parathyroid Gland        | Salivary Glands            | Skin                    |
| Stomach - Forestomach     | Stomach - Glandular      | Thymus                     | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

OBSERVATIONS

|                     |                  |                                  |                     |
|---------------------|------------------|----------------------------------|---------------------|
| Clitoral Gland      | Bilateral        | Adenoma                          |                     |
| Note: ADENOMA       | TGLs = 1-10      |                                  |                     |
| Islets, Pancreatic  |                  | Adenoma                          |                     |
| Kidney              | Renal Tubule     | Nephropathy                      | Minimal             |
|                     |                  | Pigmentation                     | Mild                |
| Liver               |                  | Basophilic Focus                 |                     |
| Lung                |                  | Infiltration Cellular            | Histiocyte, Minimal |
| Mammary Gland       |                  | Adenocarcinoma                   | Multiple            |
|                     |                  | Fibroadenoma                     |                     |
|                     |                  | Galactocele                      |                     |
| Note: [ ADENOCARC ] | TGLs = 3-14,4-15 |                                  |                     |
| Note: FIBROADENOMA  | TGLs = 2-13      |                                  |                     |
| Pancreas            | Acinus           | Hyperplasia                      | Mild                |
| Pituitary Gland     | Pars Distalis    | Adenoma                          |                     |
|                     | Pars Distalis    | Angiectasis                      | Moderate            |
| Note: ADENOMA       | TGLs = 8-8       |                                  |                     |
| Spleen              |                  | Hematopoietic Cell Proliferation | Mild                |
|                     |                  | Infiltration Cellular            | Histiocyte, Mild    |
| Thyroid Gland       | C Cell           | Adenoma                          |                     |
| Uterus              |                  | Polyp Stromal                    |                     |
| Note: POLYP STROMAL | TGLs = 9-6       |                                  |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                                 |                         |
|----------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 14 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 750 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   |
| Ovary                    | Parathyroid Gland          | Salivary Glands         | Stomach - Forestomach     |
| Stomach - Glandular      | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

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**OBSERVATIONS**

|  |               |                                  |                |
|--|---------------|----------------------------------|----------------|
| Clitoral Gland<br>[ Adenoma TGLS = 3-10 ]          | Bilateral     | Adenoma                          |                |
| Heart  |               | Cardiomyopathy                   | Mild           |
| Kidney   | Papilla       | Mineralization                   | Minimal        |
|  |               | Nephropathy                      | Minimal        |
| Liver  |               | Basophilic Focus                 |                |
| Note: BASOPH FOCUS TGLs = 7-3                      | Bile Duct     | Hyperplasia                      | Mild           |
| Mammary Gland<br>[ Fibroadenoma TGLS = 2-14+14.1 ] |               | Fibroadenoma                     |                |
| Nose   |               | Inflammation                     | Acute, Minimal |
| Pancreas   | Acinus        | Hyperplasia                      | Mild           |
| Pituitary Gland                                    | Pars Distalis | Adenoma                          |                |
| Note: ADENOMA TGLs = 6-8                           | Pars Distalis | Angiectasis                      | Moderate       |
| Skin   |               | Abscess                          | Mild           |
| Note: ABSCESS TGLs = 1-13                          |               |                                  |                |
| Spleen   |               | Hematopoietic Cell Proliferation | Moderate       |
| Uterus<br>[ Polyp Stromal TGLS = 4-6 ]             |               | Polyp Stromal                    |                |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                       |                         |
|----------------------|----------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 15 | <b>TRT#:</b> 4             | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 702 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland            | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric |
| Nose                      | Ovary                    | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Thymus                  |
| Trachea                   | Urinary Bladder          | Uterus                     |                         |

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**MISSING**

Mammary Gland

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**OBSERVATIONS**

|                                   |               |                                  |                      |
|-----------------------------------|---------------|----------------------------------|----------------------|
| Adrenal Gland                     | Medulla       | Pheochromocytoma Benign          |                      |
| Kidney                            |               | Nephropathy                      | Mild                 |
| Liver                             |               | Basophilic Focus                 |                      |
| Lung                              |               | Infiltration Cellular            | Histiocyte, Moderate |
|                                   |               | Inflammation                     | Acute, Mild          |
| Note: INFILTRAT CELL TGLs = 1-1+2 |               |                                  |                      |
| Pancreas                          | Acinus        | Hyperplasia                      | Mild                 |
| Pituitary Gland                   | Pars Distalis | Adenoma                          |                      |
| Spleen                            |               | Depletion Lymphoid               | Mild                 |
|                                   |               | Hematopoietic Cell Proliferation | Mild                 |
|                                   |               | Infiltration Cellular            | Histiocyte, Mild     |
| Note: DEPLET LYMPH TGLs = 2-3     |               |                                  |                      |
| Thyroid Gland                     | C Cell        | Adenoma                          |                      |
| Note: A FEW SPINDLE-SHAPED CELLS  |               |                                  |                      |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 17

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Lymph Node - Mesenteric | Nose                      | Ovary                    | Pancreas                   |
| Salivary Glands         | Skin                      | Stomach - Forestomach    | Stomach - Glandular        |
| Thymus                  | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**MISSING**

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

**OBSERVATIONS**

|                                 |               |                       |                  |
|---------------------------------|---------------|-----------------------|------------------|
| Kidney                          |               | Nephropathy           | Minimal          |
|                                 | Renal Tubule  | Pigmentation          | Minimal          |
| Liver                           |               | Basophilic Focus      |                  |
|                                 |               | Fatty Change          | Focal, Mild      |
|                                 |               | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC TGLs = 2-3 |               |                       |                  |
| Lymph Node                      | Mandibular    | Infiltration Cellular | Histiocyte, Mild |
| Pituitary Gland                 | Pars Distalis | Adenoma               |                  |
|                                 | Pars Distalis | Angiectasis           | Mild             |
| Note: ADENOMA TGLs = 3-8        |               |                       |                  |
| Spleen                          |               | Infiltration Cellular | Histiocyte, Mild |
|                                 |               | Leukemia Mononuclear  |                  |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                                 |                         |
|----------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 18 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 744 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Mammary Gland             | Nose                     | Ovary                      | Pancreas                |
| Parathyroid Gland         | Salivary Glands          | Skin                       | Stomach - Forestomach   |
| Stomach - Glandular       | Thymus                   | Trachea                    | Urinary Bladder         |
| Uterus                    |                          |                            |                         |

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**OBSERVATIONS**

|                      |               |                                  |                      |
|----------------------|---------------|----------------------------------|----------------------|
| Heart                |               | Cardiomyopathy                   | Mild                 |
| Kidney               | Cortex        | Mineralization                   | Minimal              |
|                      |               | Nephropathy                      | Mild                 |
| Note: NEPHROPATHY    | TGLs = 1-4    |                                  |                      |
| Liver                |               | Basophilic Focus                 |                      |
|                      |               | Hepatodiaphragmatic Nodule       |                      |
|                      |               | Inflammation                     | Granulomatous, Mild  |
| Note: ANOM HEPAT LOB | TGLs = 3-3.1  |                                  |                      |
| Lymph Node           | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild     |
| Pituitary Gland      | Pars Distalis | Angiectasis                      | Mild                 |
|                      | Pars Distalis | Hyperplasia                      | Mild                 |
| Note: ANGIECTASIS    | TGLs = 4-8    |                                  |                      |
| Spleen               |               | Hematopoietic Cell Proliferation | Mild                 |
|                      |               | Infiltration Cellular            | Histiocyte, Moderate |
| Thyroid Gland        | C Cell        | Adenoma                          |                      |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 19

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 384

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Liver                   |
| Lung                      | Lymph Node - Mandibular  | Lymph Node - Mesenteric    | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Pituitary Gland         |
| Salivary Glands           | Skin                     | Stomach - Forestomach      | Stomach - Glandular     |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|   |             |                                  |          |
|---|-------------|----------------------------------|----------|
| Clitoral Gland                                  | Bilateral   | Adenoma                          |          |
| Note: ADENOMA                                   | TGLs = 1-10 |                                  |          |
| Spleen  |             | Hematopoietic Cell Proliferation | Moderate |
| [ Hematopoietic Cell Proliferation TGLS = 2-3 ] |             |                                  |          |
| Uterus  |             | Polyp Stromal                    |          |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 20

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Kidney                     | Lymph Node - Mandibular | Lymph Node - Mesenteric   |
| Nose                     | Ovary                      | Pancreas                | Parathyroid Gland         |
| Salivary Glands          | Skin                       | Stomach - Forestomach   | Stomach - Glandular       |
| Thymus                   | Trachea                    | Urinary Bladder         |                           |

**OBSERVATIONS**

|                                |               |                                  |          |
|--------------------------------|---------------|----------------------------------|----------|
| Adrenal Gland                  | Medulla       | Hyperplasia                      | Minimal  |
| Heart                          |               | Cardiomyopathy                   | Moderate |
| Liver                          |               | Basophilic Focus                 |          |
|                                |               | Leukemia Mononuclear             |          |
| Lung                           |               | Congestion                       | Moderate |
|                                |               | Edema                            | Minimal  |
| Note: CONGESTION TGLs = 2-1+2  |               |                                  |          |
| Mammary Gland                  |               | Fibroadenoma                     |          |
| Note: FIBROADENOMA TGLs = 1-13 |               |                                  |          |
| Pituitary Gland                | Pars Distalis | Adenoma                          |          |
|                                | Pars Distalis | Angiectasis                      | Moderate |
| Note: ADENOMA TGLs = 5-8       |               |                                  |          |
| Spleen                         |               | Hematopoietic Cell Proliferation | Mild     |
|                                |               | Leukemia Mononuclear             |          |
| Thyroid Gland                  | Follicle      | Cyst                             |          |
| Uterus                         |               | Polyp Stromal                    |          |
| Note: POLYP STROMAL TGLs = 3-6 |               |                                  |          |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                       |                         |
|----------------------|----------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 21 | <b>TRT#:</b> 4             | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 413 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lymph Node - Mandibular |
| Lymph Node - Mesenteric   | Mammary Gland            | Nose                       | Ovary                   |
| Pancreas                  | Parathyroid Gland        | Pituitary Gland            | Salivary Glands         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Thyroid Gland           |
| Trachea                   | Urinary Bladder          | Uterus                     |                         |

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**MISSING**

Thymus

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**OBSERVATIONS**

|                                   |                       |                       |
|-----------------------------------|-----------------------|-----------------------|
| Heart                             | Cardiomyopathy        | Mild                  |
| Liver                             | Fatty Change          | Focal, Mild           |
| Lung                              | Infiltration Cellular | Histiocyte, Minimal   |
| Note: INFILTRAT CELL TGLs = 2-1+2 |                       |                       |
| Spleen                            | Pigmentation          | Hemosiderin, Moderate |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 22

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Bone                      | Bone Marrow              | Clitoral Gland             |
| Esophagus               | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    |
| Lymph Node - Mesenteric | Mammary Gland             | Nose                     | Ovary                      |
| Pancreas                | Parathyroid Gland         | Pituitary Gland          | Salivary Glands            |
| Skin                    | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**MISSING**

Intestine Large - Cecum

**OBSERVATIONS**

|  |              |                                  |               |
|--|--------------|----------------------------------|---------------|
| Adrenal Gland                            | Medulla      | Leukemia Mononuclear             |               |
| Note: LEUKEMIA MONUC                     | TGLs = 3-8   |                                  |               |
| Brain                                    |              | Leukemia Mononuclear             |               |
| Heart                                    |              | Cardiomyopathy                   | Mild          |
|  |              | Leukemia Mononuclear             |               |
| Kidney                                   | Renal Tubule | Pigmentation                     | Moderate      |
| Note: STRONGLY POSITIVE WITH PERL'S IRON |              |                                  |               |
| Note: QUESTIONABLE FOR ACID FAST         |              |                                  |               |
| Note: PIGMENT                            | TGLs = 5-4   |                                  |               |
| Liver                                    |              | Fatty Change                     | Diffuse, Mild |
|  |              | Leukemia Mononuclear             |               |
| Note: LEUKEMIA MONUC                     | TGLs = 4-3   |                                  |               |
| Lung                                     |              | Leukemia Mononuclear             |               |
| Spleen                                   |              | Hematopoietic Cell Proliferation | Mild          |
|  |              | Leukemia Mononuclear             |               |
| Note: LEUKEMIA MONUC                     | TGLs = 2-3+9 |                                  |               |
| Stomach                                  | Forestomach  | Acanthosis                       | Mild          |
|  | Glandular    | Erosion                          | Mild          |
|  | Forestomach  | Hyperkeratosis                   | Mild          |
| Note: HYPERKERATOSIS                     | TGLs = 6-7   |                                  |               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 22

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: [ EROSION ] TGLs = 7-7  
Thymus

Leukemia Mononuclear  
Pigmentation

Minimal

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:27  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 24

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Liver                      |
| Lymph Node - Mandibular | Nose                      | Ovary                    | Pancreas                   |
| Parathyroid Gland       | Salivary Glands           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         | Uterus                    |                          |                            |

**OBSERVATIONS**

|   |               |                       |                      |
|---|---------------|-----------------------|----------------------|
| Kidney  |               | Nephropathy           | Mild                 |
|   | Renal Tubule  | Pigmentation          | Minimal              |
| Lung  |               | Congestion            | Mild                 |
|   |               | Infiltration Cellular | Histiocyte, Minimal  |
| [ Infiltration Cellular TGLS = 3-1+2 ]        |               |                       |                      |
| Lymph Node                                    | Mesenteric    | Infiltration Cellular | Histiocyte, Mild     |
| Mammary Gland                                 |               | Fibroadenoma          | Multiple             |
|   |               | Galactocele           |                      |
| Note: FIBROADENOMA TGLs = 1-13+13.1,2-13+13.1 |               |                       |                      |
| Pituitary Gland                               | Pars Distalis | Adenoma               |                      |
|   | Pars Distalis | Angiectasis           | Mild                 |
|   | Pars Distalis | Hyperplasia           | Mild                 |
| Note: ADENOMA TGLs = 5-8                      |               |                       |                      |
| Spleen  |               | Infiltration Cellular | Histiocyte, Moderate |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 25

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 622

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Bone                     | Bone Marrow                | Brain                   | Clitoral Gland            |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Trachea                   |
| Urinary Bladder          | Uterus                     |                         |                           |

**OBSERVATIONS**

|                                       |               |                       |                  |
|---------------------------------------|---------------|-----------------------|------------------|
| Adrenal Gland                         | Cortex        | Leukemia Mononuclear  |                  |
|                                       | Medulla       | Leukemia Mononuclear  |                  |
| Note: NECROSIS OF LEUKEMIC CELLS      |               |                       |                  |
| Note: LEUKEMIA MONUC TGLs = 3-8       |               |                       |                  |
| Kidney                                |               | Leukemia Mononuclear  |                  |
| Liver                                 |               | Basophilic Focus      |                  |
|                                       |               | Fatty Change          | Focal, Minimal   |
|                                       | Bile Duct     | Hyperplasia           | Mild             |
|                                       |               | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC TGLs = 4-3       |               |                       |                  |
| Lung                                  |               | Leukemia Mononuclear  |                  |
| [ Leukemia Mononuclear TGLS = 2-1+2 ] |               |                       |                  |
| Lymph Node                            | Mesenteric    | Infiltration Cellular | Histiocyte, Mild |
| Pituitary Gland                       | Pars Distalis | Hyperplasia           | Mild             |
| Spleen                                |               | Leukemia Mononuclear  |                  |
| Thymus                                |               | Leukemia Mononuclear  |                  |
| Thyroid Gland                         | C Cell        | Adenoma               |                  |
|                                       | C Cell        | Hyperplasia           | Minimal          |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 29

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 695

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    |
| Lymph Node - Mesenteric | Nose                      | Pancreas                 | Parathyroid Gland          |
| Salivary Glands         | Skin                      | Stomach - Forestomach    | Stomach - Glandular        |
| Thyroid Gland           | Trachea                   | Urinary Bladder          | Uterus                     |

**MISSING**

Thymus

**OBSERVATIONS**

|  |               |                       |                       |
|--|---------------|-----------------------|-----------------------|
| Kidney   |               | Nephropathy           | Minimal               |
| Liver  |               | Basophilic Focus      |                       |
| Lung   |               | Infiltration Cellular | Histiocyte, Minimal   |
| Mammary Gland  |               | Fibroadenoma          |                       |
|  |               | Galactocele           |                       |
| Note: FIBROADENOMA                                     | TGLs = 2-13   |                       |                       |
| Ovary  |               | Cyst                  |                       |
| Note: CYST   | TGLs = 3-6    |                       |                       |
| Pituitary Gland  | Pars Distalis | Adenoma               |                       |
|  | Pars Distalis | Angiectasis           | Moderate              |
| Note: ADENOMA  | TGLs = 5-8    |                       |                       |
| Spleen   |               | Infiltration Cellular | Histiocyte, Moderate  |
|  |               | Pigmentation          | Hemosiderin, Moderate |
| Note: FOR ACID FAST STAIN                              |               |                       |                       |
| Note: STRONGLY POSITIVE FOR PERL'IRON AND QUESTIONABLE |               |                       |                       |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 30

TRT#: 4

SEX: Female

DAY ON TEST: 342

DOSE: VEHICLE 79 VF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Cecum  
Intestine Small - Ileum  
Lymph Node - Mandibular  
Pancreas  
Skin  
Thyroid Gland

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Large - Colon  
Intestine Small - Jejunum  
Lymph Node - Mesenteric  
Parathyroid Gland  
Stomach - Forestomach  
Trachea

Bone  
Esophagus  
Intestine Large - Rectum  
Islets, Pancreatic  
Nose  
Pituitary Gland  
Stomach - Glandular  
Urinary Bladder

Bone Marrow  
Heart  
Intestine Small - Duodenum  
Lung  
Ovary  
Salivary Glands  
Thymus  
Uterus

OBSERVATIONS

Kidney  
Liver  
[ Fatty Change TGLS = 6-3 ]  
Mammary Gland  
Note: ADENOCARC TGLs = 3-13  
Spleen

Cortex

Mineralization  
Fatty Change  
Adenocarcinoma  
Hematopoietic Cell Proliferation

Minimal  
Focal, Minimal  
Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 31

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Medulla  | Bone                       | Bone Marrow             | Brain                     |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Nose                    | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Stomach - Glandular        | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            | Uterus                  |                           |

**OBSERVATIONS**

|                             |               |                                  |                     |
|-----------------------------|---------------|----------------------------------|---------------------|
| Adrenal Gland               | Cortex        | Hyperplasia                      | Mild                |
| Clitoral Gland              |               | Adenoma                          |                     |
| [ Adenoma TGLS = 1-10.1 ]   |               |                                  |                     |
| Kidney                      | Renal Tubule  | Nephropathy                      | Minimal             |
|                             |               | Pigmentation                     | Mild                |
| Liver                       |               | Basophilic Focus                 |                     |
| Lymph Node                  | Mandibular    | Infiltration Cellular            | Histiocyte, Minimal |
|                             | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
| Mammary Gland               |               | Galactocele                      |                     |
| Pituitary Gland             | Pars Distalis | Angiectasis                      | Mild                |
|                             | Pars Distalis | Cyst                             |                     |
| Note: [ CYST ] TGLs = 6,7-8 |               |                                  |                     |
| Spleen                      |               | Hematopoietic Cell Proliferation | Mild                |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 32

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Clitoral Gland             | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Stomach - Glandular        | Thyroid Gland           | Trachea                   |
| Urinary Bladder          | Uterus                     |                         |                           |

**OBSERVATIONS**

|  |               |                       |                      |
|--|---------------|-----------------------|----------------------|
| Heart                                    |               | Cardiomyopathy        | Mild                 |
| Intestine Large                          | Colon         | Parasite              | Mild                 |
| Kidney                                   |               | Nephropathy           | Minimal              |
|  | Renal Tubule  | Pigmentation          | Mild                 |
| Liver                                    |               | Basophilic Focus      |                      |
|  |               | Degeneration          | Cystic, Minimal      |
|  | Bile Duct     | Hyperplasia           | Mild                 |
|  |               | Leukemia Mononuclear  |                      |
| Note: LEUKEMIA MONUC TGLs = 3-3          |               |                       |                      |
| Lung                                     |               | Leukemia Mononuclear  |                      |
| Lymph Node                               | Mandibular    | Infiltration Cellular | Histiocyte, Minimal  |
|  | Mediastinal   | Infiltration Cellular | Histiocyte, Mild     |
|  | Mesenteric    | Infiltration Cellular | Histiocyte, Mild     |
| Pituitary Gland                          | Pars Distalis | Cyst                  |                      |
| Note: CYST TGLs = 6-8                    |               |                       |                      |
| Spleen                                   |               | Infiltration Cellular | Histiocyte, Moderate |
|  |               | Leukemia Mononuclear  |                      |
|  |               | Pigmentation          | Mild                 |
| [ Infiltration Cellular TGLS = 4-3,5-3 ] |               |                       |                      |
| Thymus                                   |               | Pigmentation          | Minimal              |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 33                      **TRT#:** 4                      **SEX:** Female                      **DAY ON TEST:** 750  
**DOSE:** VEHICLE 79 VF                      **DISP:** Terminal Sacrifice                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Kidney                     | Lymph Node - Mandibular | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Stomach - Glandular        | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            |                         |                           |

**OBSERVATIONS**

|  |               |                                  |                     |
|--|---------------|----------------------------------|---------------------|
| Adrenal Gland                                      | Medulla       | Hyperplasia                      | Minimal             |
| Clitoral Gland                                     |               | Adenoma                          |                     |
| Note: ADENOMA      TGLs = 3-10                     |               |                                  |                     |
| Liver  | Bile Duct     | Basophilic Focus                 |                     |
|  |               | Hyperplasia                      | Mild                |
|  |               | Leukemia Mononuclear             |                     |
| Lung   |               | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node   | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL      TGLs = 11-8              |               |                                  |                     |
| Mammary Gland                                      |               | Fibroadenoma                     | Multiple            |
|  |               | Galactocele                      |                     |
| Note: FIBROADENOMA      TGLs = 2-13+13.1,4-14,5-15 |               |                                  |                     |
| Nose   |               | Inflammation                     | Acute, Minimal      |
| Pituitary Gland                                    | Pars Distalis | Adenoma                          |                     |
|  | Pars Distalis | Angiectasis                      | Moderate            |
| Note: ADENOMA      TGLs = 12-8                     |               |                                  |                     |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild                |
|  |               | Leukemia Mononuclear             |                     |
| Note: LEUKEMIA MONUC      TGLs = 10-3              |               |                                  |                     |
| Uterus   |               | Polyp Stromal                    |                     |
| Note: POLYP STROMAL      TGLs = 9-6                |               |                                  |                     |

PRIMARY CAUSE OF DEATH                      -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 34      **TRT#:** 4      **SEX:** Female      **DAY ON TEST:** 693  
**DOSE:** VEHICLE 79 VF      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Bone                    | Bone Marrow               | Clitoral Gland           | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Trachea                    |
| Urinary Bladder         | Uterus                    |                          |                            |

**OBSERVATIONS**

|                      |               |                       |                  |
|----------------------|---------------|-----------------------|------------------|
| Adrenal Gland        | Cortex        | Leukemia Mononuclear  |                  |
|                      | Medulla       | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 3-8    |                       |                  |
| Brain                |               | Leukemia Mononuclear  |                  |
| Heart                |               | Leukemia Mononuclear  |                  |
| Kidney               |               | Leukemia Mononuclear  |                  |
|                      |               | Nephropathy           | Minimal          |
| Liver                |               | Basophilic Focus      |                  |
|                      |               | Fatty Change          | Diffuse, Mild    |
|                      |               | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 4-3    |                       |                  |
| Lung                 |               | Leukemia Mononuclear  |                  |
| Lymph Node           | Mandibular    | Leukemia Mononuclear  |                  |
|                      | Mediastinal   | Leukemia Mononuclear  |                  |
|                      | Mesenteric    | Leukemia Mononuclear  |                  |
|                      | Pancreatic    | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 7-9    |                       |                  |
| Mammary Gland        |               | Galactocele           |                  |
| Pituitary Gland      | Pars Distalis | Adenoma               |                  |
| Note: ADENOMA        | TGLs = 6-8    |                       |                  |
| Spleen               |               | Infiltration Cellular | Histiocyte, Mild |
|                      |               | Leukemia Mononuclear  |                  |
|                      |               | Necrosis              | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 34

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 693

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: PROBABLY INFARCTED

[ Infiltration Cellular TGLS = 2-3.1 ]

[ Necrosis TGLS = 1-3.1 ]

Thymus

Leukemia Mononuclear

Thyroid Gland

C Cell

Hyperplasia

Minimal

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 35

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Stomach - Glandular        | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            | Uterus                  |                           |

OBSERVATIONS

|   |                                |   |   |
|---|--------------------------------|---|---|
| Adrenal Gland<br>Note: [ PHEOCHROM MAL ] TGLs = 2-8             | Medulla                        | Pheochromocytoma Malignant                                |   |
| Heart   |                                | Cardiomyopathy  | Mild  |
| Intest Large<br>Note: MUCOSAL EPITHELIUM OF CECUM HAS DRIED OUT |                                |   |   |
| Kidney  | Renal Tubule                   | Nephropathy<br>Pigmentation<br>Basophilic Focus           | Minimal<br>Minimal                                |
| Liver<br>Note: BASOPH FOCUS TGLs = 3-3                          |                                |   |   |
| Lung  |                                | Infiltration Cellular<br>Pheochromocytoma Malignant       | Histiocyte, Minimal<br>Metastatic (Adrenal Gland) |
| Lymph Node  | Mesenteric                     | Infiltration Cellular                                     | Histiocyte, Mild                                  |
| Mammary Gland<br>[ Fibroadenoma TGLS = 1-13 ]                   |                                | Fibroadenoma  |   |
| Pituitary Gland<br>Note: CYST TGLs = 4-8                        | Pars Intermed<br>Pars Distalis | Cyst<br>Hyperplasia                                       | Mild  |
| Spleen  |                                | Hematopoietic Cell Proliferation<br>Infiltration Cellular | Mild<br>Histiocyte, Mild                          |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 36

TRT#: 4

SEX: Female

DAY ON TEST: 744

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Nose                    | Ovary                     | Pancreas                 |
| Parathyroid Gland          | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Stomach - Glandular        | Trachea                 | Urinary Bladder           | Uterus                   |

OBSERVATIONS

|                    |                            |                       |                      |
|--------------------|----------------------------|-----------------------|----------------------|
| Adrenal Gland      | Medulla                    | Hyperplasia           | Moderate             |
| Clitoral Gland     |                            | Adenoma               |                      |
| Note: ADENOMA      | TGLs = 4-10                |                       |                      |
| Heart              |                            | Cardiomyopathy        | Mild                 |
| Kidney             |                            | Nephropathy           | Minimal              |
|                    | Renal Tubule               | Pigmentation          | Minimal              |
| Liver              |                            | Basophilic Focus      |                      |
|                    |                            | Pigmentation          | Minimal              |
| Lung               |                            | Atelectasis           | Mild                 |
|                    |                            | Infiltration Cellular | Histiocyte, Minimal  |
| Lymph Node         | Mesenteric                 | Infiltration Cellular | Histiocyte, Mild     |
| Mammary Gland      |                            | Fibroadenoma          | Multiple             |
|                    |                            | Galactocele           |                      |
| Note: FIBROADENOMA | TGLs = 1-13,2-14,3-15,5-16 |                       |                      |
| Pituitary Gland    | Pars Distalis              | Adenoma               |                      |
|                    | Pars Distalis              | Angiectasis           | Mild                 |
| Note: ADENOMA      | TGLs = 9-8                 |                       |                      |
| Spleen             |                            | Infiltration Cellular | Histiocyte, Moderate |
|                    |                            | Pigmentation          | Hemosiderin, Minimal |
| Thymus             | Epithel Cell               | Hyperplasia           | Mild                 |
|                    |                            | Pigmentation          | Minimal              |
| Note: HYPERPLASIA  | TGLs = 7-2                 |                       |                      |
| Thyroid Gland      | C Cell                     | Adenoma               |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 36

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Follicular Cel

Carcinoma

Note: CARCINOMA TGLs = 6-8.1

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 37

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 745

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Bone                      | Bone Marrow              | Clitoral Gland             | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              | Pancreas                |
| Salivary Glands           | Skin                     | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

**MISSING**

|           |                   |
|-----------|-------------------|
| Esophagus | Parathyroid Gland |
|-----------|-------------------|

**OBSERVATIONS**

|                                       |              |                      |               |
|---------------------------------------|--------------|----------------------|---------------|
| Adrenal Gland                         | Cortex       | Leukemia Mononuclear |               |
|                                       | Medulla      | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC TGLs = 5-8       |              |                      |               |
| Brain                                 |              | Leukemia Mononuclear |               |
| Eye                                   | Retina       | Atrophy              | Mild          |
|                                       |              | Synechia             | Mild          |
| Note: SYNECHIA TGLs = 1-13            |              |                      |               |
| Heart                                 |              | Cardiomyopathy       | Mild          |
|                                       |              | Leukemia Mononuclear |               |
| Kidney                                |              | Leukemia Mononuclear |               |
|                                       | Renal Tubule | Pigmentation         | Minimal       |
| Liver                                 |              | Fatty Change         | Diffuse, Mild |
|                                       |              | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC TGLs = 7-3       |              |                      |               |
| Lung                                  |              | Leukemia Mononuclear |               |
| [ Leukemia Mononuclear TGLs = 3-1+2 ] |              |                      |               |
| Lymph Node                            | Mandibular   | Leukemia Mononuclear |               |
|                                       | Mediastinal  | Leukemia Mononuclear |               |
|                                       | Mesenteric   | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC TGLs = 2-2       |              |                      |               |
| Mesentery                             |              | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC TGLs = 6-8       |              |                      |               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                       |                         |
|----------------------|----------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 37 | <b>TRT#:</b> 4             | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 745 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|  |             |                      |                |
|--|-------------|----------------------|----------------|
| Nose   |             | Inflammation         | Acute, Minimal |
| Ovary  |             | Leukemia Mononuclear |                |
| Pituitary Gland                              |             | Leukemia Mononuclear |                |
| Note: [ LEUKEMIA MONUC ] TGLs = 11-8         |             |                      |                |
| Spleen                                       |             | Leukemia Mononuclear |                |
| [ Leukemia Mononuclear TGLS = 9-3.1,10-3.1 ] |             |                      |                |
| Stomach                                      | Forestomach | Acanthosis           | Moderate       |
|  | Glandular   | Erosion              | Mild           |
|  | Forestomach | Hyperkeratosis       | Mild           |
|  | Glandular   | Leukemia Mononuclear |                |
| Note: [ EROSION ] TGLs = 13-7.1              |             |                      |                |
| Note: ACANTHOSIS TGLs = 12-7                 |             |                      |                |
| Thymus                                       |             | Leukemia Mononuclear |                |
| Uterus                                       |             | Leukemia Mononuclear |                |
| Note: VAGINA LINED BY MUCINOUS EPITHELIUM    |             |                      |                |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                       |                         |
|----------------------|----------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 39 | <b>TRT#:</b> 4             | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 651 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Bone                    | Brain                     | Clitoral Gland           | Esophagus                  |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Parathyroid Gland       | Salivary Glands           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

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**OBSERVATIONS**

|                              |                         |                      |                |
|------------------------------|-------------------------|----------------------|----------------|
| Adrenal Gland                | Cortex                  | Leukemia Mononuclear |                |
|                              | Medulla                 | Leukemia Mononuclear |                |
| Note: LEUKEMIA MONUC         | TGLs = 10-8             |                      |                |
| Bone Marrow                  |                         | Leukemia Mononuclear |                |
| Heart                        |                         | Leukemia Mononuclear |                |
| Kidney                       |                         | Leukemia Mononuclear |                |
|                              | Renal Tubule            | Pigmentation         | Minimal        |
| Liver                        |                         | Fatty Change         | Focal, Minimal |
|                              |                         | Leukemia Mononuclear |                |
| [ Fatty Change TGLS = 11-3 ] |                         |                      |                |
| Lung                         |                         | Leukemia Mononuclear |                |
| Note: LEUKEMIA MONUC         | TGLs = 8-3              |                      |                |
| Lymph Node                   | Deep Cervical           | Leukemia Mononuclear |                |
|                              | Mandibular              | Leukemia Mononuclear |                |
|                              | Mediastinal             | Leukemia Mononuclear |                |
|                              | Mesenteric              | Leukemia Mononuclear |                |
| Note: LEUKEMIA MONUC         | TGLs = 5-9,6-6,7-2,12-8 |                      |                |
| Mammary Gland                |                         | Fibroadenoma         |                |
|                              |                         | Galactocele          |                |
| Ovary                        |                         | Leukemia Mononuclear |                |
| Pancreas                     |                         | Leukemia Mononuclear |                |
| Pituitary Gland              | Pars Distalis           | Hyperplasia          | Mild           |
| Note: HYPERPLASIA            | TGLs = 13-8             |                      |                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 39

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 651

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Spleen  
[ Leukemia Mononuclear TGLS = 9-3 ]

Leukemia Mononuclear

Thymus  
Note: LEUKEMIA MONUC TGLs = 14-2

Leukemia Mononuclear

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 43

TRT#: 4

SEX: Female

DAY ON TEST: 549

DOSE: VEHICLE 79 VF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Bone                     | Bone Marrow                | Brain                   | Clitoral Gland            |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric | Mammary Gland             |
| Nose                     | Ovary                      | Pancreas                | Parathyroid Gland         |
| Salivary Glands          | Skin                       | Stomach - Forestomach   | Stomach - Glandular       |
| Thyroid Gland            | Trachea                    | Urinary Bladder         | Uterus                    |

OBSERVATIONS

|  |               |                                  |                   |
|--|---------------|----------------------------------|-------------------|
| Adrenal Gland  | Cortex        | Hyperplasia                      | Mild              |
|  | Medulla       | Hyperplasia                      | Mild              |
| Note: HYPERPLASIA TGLs = 3-8                         |               |                                  |                   |
| Brain  |               |                                  |                   |
| Note: BLOOD IN THE MENINGES                          |               |                                  |                   |
| Kidney   | Pelvis        | Mineralization                   | Mild              |
|  |               | Nephropathy                      | Mild              |
| Liver  |               | Basophilic Focus                 |                   |
| Note: TO BE CONSIDERED                               |               |                                  |                   |
| Note: POSSIBILITY OF NEOPLASTIC NODULE IN SECTION 3A |               |                                  |                   |
| Lung   |               | Edema                            | Mild              |
|  |               | Hemorrhage                       | Mild              |
|  |               | Infiltration Cellular            | Histiocyte, Mild  |
|  |               | Inflammation                     | Acute, Mild       |
| Note: HEMORRHAGE TGLs = 2-2                          |               |                                  |                   |
| Pituitary Gland                                      | Pars Distalis | Adenoma                          |                   |
|  | Pars Distalis | Angiectasis                      | Moderate          |
| Note: ADENOMA TGLs = 4-8                             |               |                                  |                   |
| Spleen   |               | Hematopoietic Cell Proliferation | Moderate          |
|  |               | Infiltration Cellular            | Histiocyte, Mild  |
|  |               | Pigmentation                     | Hemosiderin, Mild |
| Thymus   |               | Pigmentation                     | Minimal           |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 43

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 549

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 44

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Rectum  
Islets, Pancreatic  
Nose  
Salivary Glands  
Thymus  
Uterus

Adrenal Gland - Medulla  
Esophagus  
Intestine Small - Duodenum  
Lung  
Ovary  
Skin  
Thyroid Gland

Bone  
Intestine Large - Cecum  
Intestine Small - Ileum  
Lymph Node - Mandibular  
Pancreas  
Stomach - Forestomach  
Trachea

Bone Marrow  
Intestine Large - Colon  
Intestine Small - Jejunum  
Mammary Gland  
Parathyroid Gland  
Stomach - Glandular  
Urinary Bladder

OBSERVATIONS

Clitoral Gland  
Note: ADENOMA TGLs = 3-10

Heart  
Kidney

Liver  
Note: HYPERPLASIA TGLs = 2-3

Lymph Node

Pituitary Gland

Spleen

Note: CONGESTED

Adenoma

Cardiomyopathy  
Nephropathy  
Pigmentation  
Basophilic Focus  
Hyperplasia

Infiltration Cellular  
Infiltration Cellular  
Infiltration Cellular

Adenoma  
Angiectasis  
Hyperplasia

Depletion Lymphoid  
Hematopoietic Cell Proliferation

Mild  
Minimal  
Minimal  
Mild

Histiocyte, Mild  
Histiocyte, Mild  
Histiocyte, Mild

Mild  
Mild  
Mild  
Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 46

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 688

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Stomach - Glandular      | Thymus                     | Trachea                 | Urinary Bladder           |

**MISSING**

Clitoral Gland

**OBSERVATIONS**

|                                      |                  |                                  |                     |
|--------------------------------------|------------------|----------------------------------|---------------------|
| Heart                                |                  | Cardiomyopathy                   | Mild                |
| Kidney                               | Papilla          | Mineralization                   | Minimal             |
|                                      | Renal Tubule     | Pigmentation                     | Minimal             |
| Liver                                |                  | Basophilic Focus                 |                     |
|                                      |                  | Necrosis                         | Mild                |
| Note: NECROSIS                       | TGLs = 6-3       |                                  |                     |
| Lung                                 |                  | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node                           | Mediastinal      | Angiectasis                      | Mild                |
|                                      | Mesenteric       | Degeneration                     | Cystic, Moderate    |
|                                      | Mediastinal      | Infiltration Cellular            | Histiocyte, Mild    |
| [ Infiltration Cellular TGLS = 4-8 ] |                  |                                  |                     |
| Pituitary Gland                      | Pars Distalis    | Adenoma                          |                     |
|                                      | Pars Distalis    | Angiectasis                      | Mild                |
| Note: ADENOMA                        | TGLs = 7-8       |                                  |                     |
| Skin                                 | Subcut Tiss      | Fibrosarcoma                     |                     |
| Note: FIBROSARC                      | TGLs = 2-13+13.1 |                                  |                     |
| Spleen                               |                  | Hematopoietic Cell Proliferation | Moderate            |
| Stomach                              | Forestomach      | Acanthosis                       | Mild                |
| Thyroid Gland                        | C Cell           | Hyperplasia                      | Minimal             |
| Uterus                               |                  | Polyp Stromal                    |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 46

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 688

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Animal Note: SC FIBROSARCOMA ADJACENT TO AN OVARY AND IN MESENTERY

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
Test Type: CHRONIC  
Route: GAVAGE  
Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
Test Compound: Titanocene dichloride  
CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
Time Report Requested: 06:16:28  
First Dose M/F: NA / NA  
Lab: TSI MASON

ANIMAL ID: 47                      TRT#: 4                      SEX: Female                      DAY ON TEST: 709  
DOSE: VEHICLE 79 VF                      DISP: Dead                      HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                         |           |                         |
|-------------------------|-------------------------|-----------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone      | Bone Marrow             |
| Brain                   | Clitoral Gland          | Esophagus | Intestine Large - Colon |
| Intestine Small - Ileum | Islets, Pancreatic      | Kidney    | Lymph Node - Mandibular |
| Lymph Node - Mesenteric | Mammary Gland           | Ovary     | Pancreas                |
| Parathyroid Gland       | Salivary Glands         | Skin      | Stomach - Forestomach   |
| Stomach - Glandular     | Thyroid Gland           | Trachea   | Urinary Bladder         |
| Uterus                  |                         |           |                         |

MISSING

|                 |        |
|-----------------|--------|
| Pituitary Gland | Thymus |
|-----------------|--------|

AUTO PRECLUDES DIAG.

|                         |                          |                            |                           |
|-------------------------|--------------------------|----------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Jejunum |
|-------------------------|--------------------------|----------------------------|---------------------------|

OBSERVATIONS

|   |        |   |  |
|---|--------|---|--|
| Heart   |        | Alveolar/Bronchiolar Carcinoma<br>Cardiomyopathy                      | Metastatic (Lung)<br>Mild  |
| Note: PIECE OF LUNG TUMOR ADHERENT TO THE HEART       |        |   |  |
| Liver   |        | Basophilic Focus  |  |
| Lung  | Pleura | Alveolar/Bronchiolar Carcinoma<br>Infiltration Cellular<br>Metaplasia | Metastatic (Uncertain Primary Site)<br>Histiocyte, Mild<br>Osseous, Mild |
| Note: ALV BRON CARC    TGLs = 2-13+13.1,14+14.1       |        |   |  |
| Note: ALV BRON CARC    TGLs = 1-1+2+2.1               |        |   |  |
| Note: EITHER NORMAL RIB OR BONY METAPLASIA ON #13.1   |        |   |  |
| Note: SECTION #2.1                                    |        |   |  |
| Note: WITHIN NODULE. SUGGESTION OF MESOTHELIOMA IN    |        |   |  |
| Note: CAVITY AND ADHERED TO THE RIB CAGE. NODULE      |        |   |  |
| Note: THIS NEOPLASM HAS INFILTRATED INTO THE THORACIC |        |   |  |
| Nose  |        | Hemorrhage  | Mild   |
| Spleen  |        | Infiltration Cellular   | Histiocyte, Mild   |

PRIMARY CAUSE OF DEATH                      -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 48

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 652

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Parathyroid Gland         |
| Skin                     | Thyroid Gland              | Trachea                 |                           |

**OBSERVATIONS**

|                      |                        |                                  |             |
|----------------------|------------------------|----------------------------------|-------------|
| Brain                |                        | Leukemia Mononuclear             |             |
| Heart                |                        | Leukemia Mononuclear             |             |
| Kidney               |                        | Leukemia Mononuclear             |             |
|                      | Renal Tubule           | Pigmentation                     | Mild        |
| Note: LEUKEMIA MONUC | TGLs = 13-4            |                                  |             |
| Liver                |                        | Fatty Change                     | Focal, Mild |
|                      | Bile Duct              | Hyperplasia                      | Mild        |
|                      |                        | Leukemia Mononuclear             |             |
| Lung                 |                        | Leukemia Mononuclear             |             |
| Note: LEUKEMIA MONUC | TGLs = 5-2+2.1,6-2+2.1 |                                  |             |
| Lymph Node           |                        | Leukemia Mononuclear             |             |
|                      | Axillary               | Leukemia Mononuclear             |             |
|                      | Mandibular             | Leukemia Mononuclear             |             |
|                      | Mediastinal            | Leukemia Mononuclear             |             |
|                      | Mesenteric             | Leukemia Mononuclear             |             |
|                      | Pancreatic             | Leukemia Mononuclear             |             |
| Note: LEUKEMIA MONUC | TGLs = 3-9,7-9,17-9    |                                  |             |
| Ovary                |                        | Leukemia Mononuclear             |             |
| Pancreas             |                        | Leukemia Mononuclear             |             |
| Pituitary Gland      |                        | Leukemia Mononuclear             |             |
| Note: LEUKEMIA MONUC | TGLs = 14-8            |                                  |             |
| Salivary Glands      |                        | Leukemia Mononuclear             |             |
| Spleen               |                        | Hematopoietic Cell Proliferation | Minimal     |
|                      |                        | Leukemia Mononuclear             |             |
|                      |                        | Necrosis                         | Moderate    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 48

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 652

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

[ Hematopoietic Cell Proliferation TGLS = 9-3.1,3.2 ]

[ Necrosis TGLS = 8-3.1,3.2 ]

Stomach

Forestomach

Leukemia Mononuclear

Glandular

Leukemia Mononuclear

Note: LEUKEMIA MONUC TGLs = 15-7,16-7

Thymus

Leukemia Mononuclear

Note: LEUKEMIA MONUC TGLs = 4-2

Urinary Bladder

Leukemia Mononuclear

Note: LEUKEMIA MONUC TGLs = 11-9

Uterus

Leukemia Mononuclear

Note: LEUKEMIA MONUC TGLs = 10-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                       |                         |
|----------------------|----------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 50 | <b>TRT#:</b> 4             | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 611 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   |
| Nose                     | Ovary                      | Pancreas                | Salivary Glands           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Thyroid Gland            | Trachea                    | Urinary Bladder         | Uterus                    |

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**MISSING**

|           |                   |
|-----------|-------------------|
| Esophagus | Parathyroid Gland |
|-----------|-------------------|

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**OBSERVATIONS**

|                        |                |                                  |                  |
|------------------------|----------------|----------------------------------|------------------|
| Clitoral Gland         |                | Adenoma                          |                  |
| Note: ADENOMA          | TGLs = 3-10    |                                  |                  |
| Kidney                 |                | Nephropathy                      | Mild             |
| Liver                  |                | Basophilic Focus                 |                  |
|                        |                | Fatty Change                     | Focal, Mild      |
| Note: [ BASOPH FOCUS ] | TGLs = 7-3+3.1 |                                  |                  |
| Mammary Gland          |                | Galactocele                      |                  |
| Pituitary Gland        | Pars Distalis  | Adenoma                          |                  |
|                        | Pars Distalis  | Angiectasis                      | Moderate         |
| Note: ADENOMA          | TGLs = 6-8     |                                  |                  |
| Spleen                 |                | Hematopoietic Cell Proliferation | Mild             |
|                        |                | Infiltration Cellular            | Histiocyte, Mild |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
Test Type: CHRONIC  
Route: GAVAGE  
Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
Test Compound: Titanocene dichloride  
CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
Time Report Requested: 06:16:28  
First Dose M/F: NA / NA  
Lab: TSI MASON

ANIMAL ID: 51      TRT#: 4      SEX: Female      DAY ON TEST: 750  
DOSE: VEHICLE 79 VF      DISP: Terminal Sacrifice      HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Esophagus                |
| Heart                      | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Lymph Node - Mesenteric | Nose                      | Ovary                    |
| Parathyroid Gland          | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Stomach - Glandular        | Thymus                  | Thyroid Gland             | Trachea                  |
| Urinary Bladder            | Uterus                  |                           |                          |

OBSERVATIONS

|   |               |                                  |                  |
|---|---------------|----------------------------------|------------------|
| Adrenal Gland                                   | Medulla       | Hyperplasia                      | Mild             |
|   | Medulla       | Pheochromocytoma Benign          |                  |
| Brain   |               | Granular Cell Tumor Benign       |                  |
| Clitoral Gland                                  |               | Adenoma                          |                  |
| [ Adenoma TGLS = 3-10 ]                         |               |                                  |                  |
| Kidney  |               | Nephropathy                      | Minimal          |
|   | Renal Tubule  | Pigmentation                     | Minimal          |
| Liver   |               | Basophilic Focus                 |                  |
|   | Bile Duct     | Hyperplasia                      | Mild             |
| Lung  |               | Infiltration Cellular            | Histiocyte, Mild |
| Mammary Gland                                   |               | Fibroadenoma                     | Multiple         |
|   |               | Galactocele                      |                  |
| Note: TGL #2 IS A MAMMARY GLAND MASS            |               |                                  |                  |
| Note: FIBROADENOMA    TGLs = 2-6,4-13,5-14,1-14 |               |                                  |                  |
| Pancreas  | Acinus        | Hyperplasia                      | Moderate         |
| Pituitary Gland                                 | Pars Distalis | Angiectasis                      | Mild             |
|   | Pars Distalis | Hyperplasia                      | Minimal          |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild             |

PRIMARY CAUSE OF DEATH      -

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 52

TRT#: 4

SEX: Female

DAY ON TEST: 743

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Lymph Node - Mandibular | Nose                      | Ovary                    | Pancreas                   |
| Parathyroid Gland       | Salivary Glands           | Skin                     | Stomach - Glandular        |
| Thymus                  | Trachea                   | Urinary Bladder          | Uterus                     |

OBSERVATIONS

|                           |                  |                            |                      |
|---------------------------|------------------|----------------------------|----------------------|
| Kidney                    |                  | Nephropathy                | Mild                 |
| Note: NEPHROPATHY         | TGLs = 5-4       |                            |                      |
| Liver                     |                  | Basophilic Focus           |                      |
|                           |                  | Fatty Change               | Focal, Mild          |
|                           |                  | Hepatodiaphragmatic Nodule |                      |
| Note: ANOM HEPAT LOB      | TGLs = 9-3       |                            |                      |
| Note: [ BASOPH FOCUS ]    | TGLs = 6-3       |                            |                      |
| Lymph Node                | Mediastinal      | Infiltration Cellular      | Histiocyte, Mild     |
|                           | Mesenteric       | Infiltration Cellular      | Histiocyte, Mild     |
| Mammary Gland             |                  | Fibroadenoma               |                      |
|                           |                  | Galactocele                |                      |
| Note: FIBROADENOMA        | TGLs = 1-10+10.1 |                            |                      |
| Pituitary Gland           | Pars Distalis    | Adenoma                    |                      |
|                           | Pars Distalis    | Angiectasis                | Moderate             |
| Note: ADENOMA             | TGLs = 8-8       |                            |                      |
| Spleen                    |                  | Infiltration Cellular      | Histiocyte, Moderate |
| Stomach                   | Forestomach      | Acanthosis                 | Mild                 |
|                           | Forestomach      | Hyperkeratosis             | Mild                 |
|                           | Forestomach      | Necrosis                   | Moderate             |
| Thyroid Gland             | C Cell           | Adenoma                    |                      |
| Note: MANY FUSIFORM CELLS |                  |                            |                      |
| Uterus                    |                  |                            |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:28

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 52

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: INFLAMMATORY CELLS, AND MUCINOUS MATERIAL IN THE VAGINA.

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 53

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular | Lymph Node - Mesenteric   |
| Nose                     | Ovary                      | Pancreas                | Parathyroid Gland         |
| Salivary Glands          | Skin                       | Stomach - Glandular     | Thymus                    |
| Trachea                  | Urinary Bladder            | Uterus                  |                           |

OBSERVATIONS

|                                |               |                                  |                  |
|--------------------------------|---------------|----------------------------------|------------------|
| Adrenal Gland                  | Medulla       | Hyperplasia                      | Minimal          |
| Heart                          |               | Cardiomyopathy                   | Mild             |
| Kidney                         |               | Nephropathy                      | Mild             |
|                                | Renal Tubule  | Pigmentation                     | Minimal          |
| Liver                          |               | Basophilic Focus                 |                  |
|                                |               | Fatty Change                     | Diffuse, Mild    |
| Mammary Gland                  |               | Fibroadenoma                     |                  |
|                                |               | Galactocele                      |                  |
| Note: FIBROADENOMA TGLs = 1-13 |               |                                  |                  |
| Pituitary Gland                | Pars Distalis | Adenoma                          |                  |
|                                | Pars Distalis | Angiectasis                      | Mild             |
| Note: ADENOMA TGLs = 4-8       |               |                                  |                  |
| Spleen                         |               | Hematopoietic Cell Proliferation | Mild             |
|                                |               | Infiltration Cellular            | Histiocyte, Mild |
| Stomach                        | Forestomach   | Acanthosis                       | Moderate         |
|                                | Forestomach   | Hyperkeratosis                   | Mild             |
|                                | Forestomach   | Inflammation                     | Acute, Mild      |
| Note: ACANTHOSIS TGLs = 5-7    |               |                                  |                  |
| Thyroid Gland                  | C Cell        | Adenoma                          |                  |
| Note: ADENOMA TGLs = 2-8       |               |                                  |                  |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 54

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Intestine Small - Jejunum  
Nose  
Salivary Glands  
Thymus  
Uterus

Adrenal Gland - Medulla  
Esophagus  
Intestine Large - Rectum  
Islets, Pancreatic  
Ovary  
Skin  
Thyroid Gland

Bone  
Heart  
Intestine Small - Duodenum  
Lung  
Pancreas  
Stomach - Forestomach  
Trachea

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Ileum  
Lymph Node - Mandibular  
Parathyroid Gland  
Stomach - Glandular  
Urinary Bladder

OBSERVATIONS

Clitoral Gland  
Note: ADENOMA TGLs = 3-10

Kidney  
Liver  
Renal Tubule

Lymph Node  
Mammary Gland  
Mesenteric

Note: FIBROADENOMA TGLs = 1-13  
Pituitary Gland

Note: ADENOMA TGLs = 2-8,5-8  
Spleen

Tooth  
Pulp

Adenoma

Pigmentation  
Basophilic Focus  
Fatty Change  
Infiltration Cellular  
Fibroadenoma  
Galactocele

Adenoma  
Hyperplasia  
Mild

Hematopoietic Cell Proliferation  
Infiltration Cellular  
Mild  
Histiocyte, Mild

Fibroma

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 56

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Lung                     | Lymph Node - Mandibular    | Nose                    | Ovary                     |
| Parathyroid Gland        | Salivary Glands            | Skin                    | Stomach - Forestomach     |
| Stomach - Glandular      | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          | Uterus                     |                         |                           |

MISSING

Clitoral Gland

OBSERVATIONS

|   |               |                                  |                         |
|---|---------------|----------------------------------|-------------------------|
| Heart   |               | Cardiomyopathy                   | Mild                    |
| Islets, Pancreatic                            |               | Adenoma                          |                         |
| Kidney  | Papilla       | Mineralization                   | Minimal                 |
|   |               | Nephropathy                      | Minimal                 |
|   | Renal Tubule  | Pigmentation                     | Minimal                 |
| Liver   |               | Basophilic Focus                 |                         |
|   |               | Inflammation                     | Granulomatous, Moderate |
|   |               | Leukemia Mononuclear             |                         |
| Note: MORE LIKE GRANULOMATOUS INFLAMMATION    |               |                                  |                         |
| Note: INFLAMMATION TGLs = 3-3                 |               |                                  |                         |
| Lymph Node                                    | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild        |
| Mammary Gland                                 |               | Fibroadenoma                     | Multiple                |
|   |               | Galactocele                      |                         |
| Note: FIBROADENOMA TGLs = 1-13,2-14+14.1+14.2 |               |                                  |                         |
| Pancreas                                      | Acinus        | Hyperplasia                      | Mild                    |
| Pituitary Gland                               | Pars Distalis | Adenoma                          |                         |
|   | Pars Distalis | Angiectasis                      | Mild                    |
| Note: ANGIECTASIS TGLs = 4-8                  |               |                                  |                         |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild                    |
|   |               | Infiltration Cellular            | Histiocyte, Minimal     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 56

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

Leukemia Mononuclear

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 57

TRT#: 4

SEX: Female

DAY ON TEST: 750

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Clitoral Gland            | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Stomach - Forestomach    | Stomach - Glandular        | Thymus                  |
| Trachea                   | Urinary Bladder          |                            |                         |

OBSERVATIONS

|                                 |               |                                  |                  |
|---------------------------------|---------------|----------------------------------|------------------|
| Brain                           |               | Astrocytoma Malignant            |                  |
| Kidney                          |               | Nephropathy                      | Minimal          |
|                                 | Renal Tubule  | Pigmentation                     | Minimal          |
| Liver                           |               | Basophilic Focus                 |                  |
|                                 |               | Mixed Cell Focus                 |                  |
| [ Basophilic Focus TGLS = 2-3 ] |               |                                  |                  |
| Lung                            |               | Congestion                       | Mild             |
| [ Congestion TGLS = 1-1+2 ]     |               |                                  |                  |
| Lymph Node                      | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild |
| Mammary Gland                   |               | Galactocele                      |                  |
| Pituitary Gland                 | Pars Distalis | Adenoma                          | Multiple         |
|                                 | Pars Distalis | Angiectasis                      | Mild             |
| Spleen                          |               | Hematopoietic Cell Proliferation | Mild             |
|                                 |               | Infiltration Cellular            | Histiocyte, Mild |
| Thyroid Gland                   | C Cell        | Hyperplasia                      | Minimal          |
| Uterus                          |               | Polyp Stromal                    |                  |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 58

TRT#: 4

SEX: Female

DAY ON TEST: 744

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Thyroid Gland              |
| Trachea                 | Urinary Bladder           | Uterus                   |                            |

MISSING

Thymus

OBSERVATIONS

|                 |                                   |                       |                      |
|-----------------|-----------------------------------|-----------------------|----------------------|
| Kidney          | Cortex                            | Mineralization        | Minimal              |
|                 | Papilla                           | Mineralization        | Minimal              |
|                 | Renal Tubule                      | Pigmentation          | Mild                 |
| Liver           |                                   | Basophilic Focus      |                      |
|                 |                                   | Fatty Change          | Focal, Minimal       |
| Lung            |                                   | Infiltration Cellular | Histiocyte, Minimal  |
|                 | Note: INFILTRAT CELL TGLs = 4-1+2 |                       |                      |
| Lymph Node      | Mandibular                        | Infiltration Cellular | Histiocyte, Minimal  |
|                 | Mediastinal                       | Infiltration Cellular | Histiocyte, Mild     |
|                 | Mesenteric                        | Infiltration Cellular | Histiocyte, Mild     |
| Mammary Gland   |                                   | Adenoma               |                      |
|                 |                                   | Fibroadenoma          |                      |
|                 |                                   | Galactocele           |                      |
|                 | Note: FIBROADENOMA TGLs = 2-13    |                       |                      |
|                 | Note: ADENOMA TGLs = 3-13         |                       |                      |
| Pituitary Gland | Pars Distalis                     | Adenoma               |                      |
|                 | Note: ADENOMA TGLs = 6-8          |                       |                      |
| Spleen          |                                   | Infiltration Cellular | Histiocyte, Moderate |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 61

TRT#: 4

SEX: Female

DAY ON TEST: 715

DOSE: VEHICLE 79 VF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland            | Esophagus                | Harderian Gland            | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Stomach - Glandular      | Thyroid Gland              | Trachea                 |
| Urinary Bladder           | Uterus                   |                            |                         |

OBSERVATIONS

|                                 |               |                      |             |
|---------------------------------|---------------|----------------------|-------------|
| Adrenal Gland                   | Medulla       | Hyperplasia          | Minimal     |
| Bone Marrow                     |               |                      |             |
| Note: COULD THIS BE AN OSTEOMA  |               |                      |             |
| Eye                             | Retina        | Atrophy              | Mild        |
| Note: ATROPHY TGLs = 1-14       |               |                      |             |
| Heart                           |               | Cardiomyopathy       | Mild        |
| Kidney                          |               | Leukemia Mononuclear |             |
| Liver                           |               | Leukemia Mononuclear |             |
|                                 |               | Basophilic Focus     |             |
|                                 |               | Fatty Change         | Focal, Mild |
|                                 |               | Leukemia Mononuclear |             |
| Note: LEUKEMIA MONUC TGLs = 7-3 |               |                      |             |
| Lung                            |               | Leukemia Mononuclear |             |
| Lymph Node                      | Mandibular    | Leukemia Mononuclear |             |
|                                 | Mediastinal   | Leukemia Mononuclear |             |
|                                 | Mesenteric    | Leukemia Mononuclear |             |
| Note: LEUKEMIA MONUC TGLs = 3-9 |               |                      |             |
| Pituitary Gland                 | Pars Distalis | Adenoma              |             |
|                                 | Pars Distalis | Angiectasis          | Moderate    |
| Note: ADENOMA TGLs = 9-8        |               |                      |             |
| Note: ANGIECTASIS TGLs = 8-8    |               |                      |             |
| Spleen                          |               | Leukemia Mononuclear |             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:28

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 61

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 715

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

[ Leukemia Mononuclear TGLS = 5-3.1 ]

|         |             |                      |      |
|---------|-------------|----------------------|------|
| Stomach | Forestomach | Acanthosis           | Mild |
|         | Forestomach | Hyperkeratosis       | Mild |
|         | Forestomach | Necrosis             | Mild |
| Thymus  |             | Leukemia Mononuclear |      |

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 63

TRT#: 4

SEX: Female

DAY ON TEST: 624

DOSE: VEHICLE 79 VF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Bone                       | Bone Marrow             | Brain                     | Clitoral Gland           |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Lymph Node - Mesenteric | Mammary Gland             | Nose                     |
| Ovary                      | Pancreas                | Parathyroid Gland         | Salivary Glands          |
| Skin                       | Stomach - Forestomach   | Stomach - Glandular       | Thyroid Gland            |
| Trachea                    | Urinary Bladder         | Uterus                    |                          |

OBSERVATIONS

|                      |               |                      |               |
|----------------------|---------------|----------------------|---------------|
| Adrenal Gland        | Cortex        | Leukemia Mononuclear |               |
|                      | Medulla       | Leukemia Mononuclear |               |
| Blood                |               | Leukemia Mononuclear |               |
| Heart                |               | Cardiomyopathy       | Mild          |
|                      |               | Leukemia Mononuclear |               |
| Kidney               | Pelvis        | Mineralization       | Minimal       |
|                      |               | Nephropathy          | Mild          |
|                      | Renal Tubule  | Pigmentation         | Mild          |
| Liver                |               | Fatty Change         | Diffuse, Mild |
|                      | Bile Duct     | Hyperplasia          | Mild          |
|                      |               | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC |               |                      | TGLs = 8-3    |
| Note: FATTY CHANGE   |               |                      | TGLs = 7-3    |
| Lung                 |               | Leukemia Mononuclear |               |
| Pituitary Gland      | Pars Distalis | Angiectasis          | Mild          |
|                      | Pars Distalis | Cyst                 |               |
| Note: [ CYST ]       |               |                      | TGLs = 10-8   |
| Spleen               | Capsule       | Hemorrhage           | Mild          |
|                      |               | Leukemia Mononuclear |               |
|                      | Capsule       | Necrosis             | Moderate      |
| Note: NECROSIS       |               |                      | TGLs = 6-3.1  |
| Note: LEUKEMIA MONUC |               |                      | TGLs = 5-3.1  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 63

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 624

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Thymus

Depletion Lymphoid

Mild

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                      |                            |                    |                         |
|----------------------|----------------------------|--------------------|-------------------------|
| <b>ANIMAL ID:</b> 64 | <b>TRT#:</b> 4             | <b>SEX:</b> Female | <b>DAY ON TEST:</b> 615 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Dead  | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                    |                         |                          |
|----------------------------|--------------------|-------------------------|--------------------------|
| Bone                       | Bone Marrow        | Brain                   | Clitoral Gland           |
| Esophagus                  | Heart              | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Duodenum | Islets, Pancreatic | Kidney                  | Mammary Gland            |
| Nose                       | Pancreas           | Parathyroid Gland       | Pituitary Gland          |
| Salivary Glands            | Skin               | Stomach - Glandular     | Thymus                   |
| Thyroid Gland              | Trachea            | Urinary Bladder         |                          |

**AUTO PRECLUDES DIAG.**

|                         |                         |                           |
|-------------------------|-------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Small - Ileum | Intestine Small - Jejunum |
|-------------------------|-------------------------|---------------------------|

**OBSERVATIONS**

|                      |             |                      |               |
|----------------------|-------------|----------------------|---------------|
| Adrenal Gland        | Cortex      | Hyperplasia          | Minimal       |
|                      | Medulla     | Hyperplasia          | Minimal       |
| Liver                |             | Fatty Change         | Diffuse, Mild |
|                      | Bile Duct   | Hyperplasia          | Mild          |
|                      |             | Leukemia Mononuclear |               |
| Lung                 |             | Leukemia Mononuclear |               |
| Lymph Node           | Mandibular  | Leukemia Mononuclear |               |
|                      | Mesenteric  | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC | TGLs = 3-9  |                      |               |
| Ovary                |             | Leukemia Mononuclear |               |
| Spleen               |             | Fibrosis             | Minimal       |
|                      |             | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC | TGLs = 4-3  |                      |               |
| Stomach              | Forestomach | Acanthosis           | Minimal       |
|                      | Forestomach | Hyperkeratosis       | Minimal       |
|                      | Forestomach | Necrosis             | Minimal       |
| Note: ACANTHOSIS     | TGLs = 7-7  |                      |               |
| Uterus               |             | Leukemia Mononuclear |               |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 65

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Bone                      | Bone Marrow              | Brain                      |
| Esophagus               | Eye                       | Harderian Gland          | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Thymus                     |
| Trachea                 | Urinary Bladder           | Uterus                   |                            |

**MISSING**

Clitoral Gland

**OBSERVATIONS**

|  |                                      |                              |                     |
|--|--------------------------------------|------------------------------|---------------------|
| Adrenal Gland  | Medulla                              | Hyperplasia                  | Mild                |
| Eye  |                                      |                              |                     |
| Note: SUGGESTIVE OF HYPERPLASIA OF THE CORNEAL EPITHELIUM. |                                      |                              |                     |
| Kidney   |                                      | Nephropathy                  | Mild                |
|  | Renal Tubule                         | Pigmentation                 | Mild                |
| Liver  |                                      | Basophilic Focus             |                     |
|  |                                      | Fatty Change                 | Focal, Minimal      |
| Lung   |                                      | Leukemia Mononuclear         |                     |
|  |                                      | Alveolar/Bronchiolar Adenoma |                     |
|  |                                      | Infiltration Cellular        | Histiocyte, Mild    |
|  | [ Infiltration Cellular TGLS = 7-2 ] |                              |                     |
| Lymph Node   | Mandibular                           | Infiltration Cellular        | Histiocyte, Minimal |
|  | Mediastinal                          | Infiltration Cellular        | Histiocyte, Mild    |
|  | Mesenteric                           | Infiltration Cellular        | Histiocyte, Minimal |
|  |                                      |                              |                     |
| Note: INFILTRAT CELL TGLs = 4-8                            |                                      |                              |                     |
| Mammary Gland  |                                      | Adenocarcinoma               |                     |
|  |                                      | Fibroadenoma                 |                     |
|  |                                      | Galactocele                  |                     |
|  |                                      |                              |                     |
| Note: FIBROADENOMA TGLs = 2-14                             |                                      |                              |                     |
| Note: ADENOCARC TGLs = 3-15                                |                                      |                              |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                                 |                         |
|----------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 65 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 750 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |               |   |                                |
|---|---------------|---|--------------------------------|
| Pituitary Gland<br>Note: ADENOMA TGLs = 6-8<br>Note: LARGE ACIDOPHIL AND SMALL CHROMOPHOBE ADENOMA. | Pars Distalis | Adenoma   | Multiple                       |
| Spleen  |               | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Leukemia Mononuclear | Minimal<br>Histiocyte, Minimal |
| Thyroid Gland   | C Cell        | Adenoma   |                                |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 66      **TRT#:** 4      **SEX:** Female      **DAY ON TEST:** 750  
**DOSE:** VEHICLE 79 VF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Stomach - Glandular        | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            | Uterus                  |                           |

**OBSERVATIONS**

|                                      |               |                         |                     |
|--------------------------------------|---------------|-------------------------|---------------------|
| Adrenal Gland                        | Medulla       | Pheochromocytoma Benign |                     |
| Heart                                |               | Cardiomyopathy          | Mild                |
| Kidney                               | Renal Tubule  | Pigmentation            | Minimal             |
| Liver                                |               | Basophilic Focus        |                     |
|                                      |               | Inflammation            | Granulomatous, Mild |
| Note: INFLAMMATION    TGLs = 4-3     |               |                         |                     |
| Lung                                 |               | Infiltration Cellular   | Histiocyte, Minimal |
| Note: PLANT MATERIAL                 |               |                         |                     |
| Lymph Node                           | Mediastinal   | Infiltration Cellular   | Histiocyte, Mild    |
|                                      | Mesenteric    | Infiltration Cellular   | Histiocyte, Mild    |
| Note: INFILTRAT CELL    TGLs = 2-2.1 |               |                         |                     |
| Mammary Gland                        |               | Fibroadenoma            |                     |
|                                      |               | Galactocele             |                     |
| Note: FIBROADENOMA    TGLs = 1-10.1  |               |                         |                     |
| Pituitary Gland                      | Pars Distalis | Angiectasis             | Mild                |
|                                      | Pars Distalis | Hyperplasia             | Mild                |
| Note: ANGIECTASIS    TGLs = 5-8      |               |                         |                     |
| Spleen                               |               | Infiltration Cellular   | Histiocyte, Mild    |

PRIMARY CAUSE OF DEATH      -

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 67

TRT#: 4

SEX: Female

DAY ON TEST: 639

DOSE: VEHICLE 79 VF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Blood                     | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland            | Esophagus                | Eye                        | Harderian Gland         |
| Intestine Large - Cecum   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       | Parathyroid Gland       |
| Skin                      | Thyroid Gland            | Trachea                    |                         |

MISSING

Intestine Large - Colon

OBSERVATIONS

|   |                      |                                |                  |
|---|----------------------|--------------------------------|------------------|
| Adrenal Gland                                 | Medulla              | Hyperplasia                    | Minimal          |
|   | Cortex               | Leukemia Mononuclear           |                  |
|   | Medulla              | Leukemia Mononuclear           |                  |
| Heart   |                      | Cardiomyopathy                 | Mild             |
|   |                      | Lymphoma Malignant Lymphocytic |                  |
| Kidney  |                      | Leukemia Mononuclear           |                  |
|   |                      | Nephropathy                    | Minimal          |
| Liver   |                      | Fatty Change                   | Diffuse, Mild    |
|   | Bile Duct            | Hyperplasia                    | Mild             |
|   |                      | Leukemia Mononuclear           |                  |
| Note: FATTY CHANGE                            | TGLs = 14-3          |                                |                  |
| Note: [ LEUKEMIA MONUC ]                      | TGLs = 13-3          |                                |                  |
| Lung  |                      | Infiltration Cellular          | Histiocyte, Mild |
|   |                      | Leukemia Mononuclear           |                  |
| Note: [ LEUKEMIA MONUC ]                      | TGLs = 6-1+2         |                                |                  |
| Lymph Node                                    | Mandibular           | Leukemia Mononuclear           |                  |
|   | Mediastinal          | Leukemia Mononuclear           |                  |
|   | Mesenteric           | Leukemia Mononuclear           |                  |
|   | Pancreatic           | Leukemia Mononuclear           |                  |
| Note: [ LEUKEMIA MONUC ]                      | TGLs = 3-9,10-9,12-8 |                                |                  |
| Mammary Gland                                 |                      | Fibroadenoma                   |                  |
| Note: TGL #4 PROBABLY REFERS TO MAMMARY GLAND |                      |                                |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                       |                         |
|----------------------|----------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 67 | <b>TRT#:</b> 4             | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 639 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                          |             |                                  |      |
|--------------------------|-------------|----------------------------------|------|
| Ovary                    |             | Leukemia Mononuclear             |      |
| Note: [ LEUKEMIA MONUC ] | TGLs = 8-6  |                                  |      |
| Pancreas                 |             | Leukemia Mononuclear             |      |
| Note: [ LEUKEMIA MONUC ] | TGLs = 11-9 |                                  |      |
| Pituitary Gland          |             | Leukemia Mononuclear             |      |
| Note: [ LEUKEMIA MONUC ] | TGLs = 15-8 |                                  |      |
| Salivary Glands          |             | Leukemia Mononuclear             |      |
| Spleen                   |             | Hematopoietic Cell Proliferation | Mild |
|                          |             | Leukemia Mononuclear             |      |
| Stomach                  | Forestomach | Leukemia Mononuclear             |      |
|                          | Glandular   | Leukemia Mononuclear             |      |
| Thymus                   |             | Leukemia Mononuclear             |      |
| Note: [ LEUKEMIA MONUC ] | TGLs = 5-2  |                                  |      |
| Urinary Bladder          |             | Leukemia Mononuclear             |      |
| Uterus                   |             | Leukemia Mononuclear             |      |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 68

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Ovary                   | Parathyroid Gland         | Pituitary Gland          | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Thymus                     |
| Thyroid Gland           | Trachea                   | Urinary Bladder          | Uterus                     |

**OBSERVATIONS**

|                              |   |                                  |                     |
|------------------------------|---|----------------------------------|---------------------|
| Kidney                       |   | Nephropathy                      | Mild                |
|                              | Renal Tubule                              | Pigmentation                     | Mild                |
| Liver                        |   | Basophilic Focus                 |                     |
|                              |   | Hepatodiaphragmatic Nodule       |                     |
|                              |   | Inflammation                     | Granulomatous, Mild |
|                              | [ Hepatodiaphragmatic Nodule TGLS = 5-3 ] |                                  |                     |
| Lymph Node                   | Mandibular                                | Infiltration Cellular            | Histiocyte, Minimal |
|                              | Mesenteric                                | Infiltration Cellular            | Histiocyte, Mild    |
| Mammary Gland                |   | Fibroadenoma                     | Multiple            |
| Note: FIBROADENOMA           | TGLs = 1-10.1,2-10                        |                                  |                     |
| Nose                         |   | Inflammation                     | Acute, Minimal      |
| Pancreas                     | Acinus                                    | Adenoma                          |                     |
| Note: ADENOMA                | TGLs = 4-9                                |                                  |                     |
| Note: NODULE WITHIN A NODULE |   |                                  |                     |
| Spleen                       |   | Hematopoietic Cell Proliferation | Mild                |
|                              |   | Infiltration Cellular            | Histiocyte, Mild    |
| Trachea                      |   |                                  |                     |
| Note: BLOOD IN TRACHEA       |   |                                  |                     |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 69

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Intestine Large - Cecum  
Intestine Small - Jejunum  
Lymph Node - Mandibular  
Parathyroid Gland  
Stomach - Glandular  
Urinary Bladder

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Large - Rectum  
Islets, Pancreatic  
Mammary Gland  
Salivary Glands  
Thymus  
Uterus

Bone  
Esophagus  
Intestine Small - Duodenum  
Kidney  
Ovary  
Skin  
Thyroid Gland

Bone Marrow  
Heart  
Intestine Small - Ileum  
Lung  
Pancreas  
Stomach - Forestomach  
Trachea

**MISSING**

Intestine Large - Colon

**OBSERVATIONS**

Liver  
  
Lymph Node  
  
[ Infiltration Cellular TGLS = 1-8 ]  
Nose  
  
Pituitary Gland  
  
Note: ANGIOECTASIS TGLs = 3-8  
Spleen

Bile Duct  
Mediastinal  
Mesenteric  
Pancreatic  
  
Pars Distalis  
Pars Distalis

Basophilic Focus  
Hyperplasia  
Infiltration Cellular  
Infiltration Cellular  
Infiltration Cellular

Fungus  
Inflammation  
Angiectasis  
Hyperplasia

Hematopoietic Cell Proliferation  
Infiltration Cellular

Mild  
Histiocyte, Minimal  
Histiocyte, Mild  
Histiocyte, Mild  
  
Mild  
Acute, Mild  
Mild  
Mild  
  
Mild  
Histiocyte, Mild

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                                 |                         |
|----------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 72 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 750 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Mammary Gland           | Nose                      | Ovary                    | Pancreas                   |
| Parathyroid Gland       | Pituitary Gland           | Salivary Glands          | Skin                       |
| Stomach - Forestomach   | Stomach - Glandular       | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

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**MISSING**

Lymph Node - Mandibular

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**OBSERVATIONS**

|   |              |                       |                     |
|---|--------------|-----------------------|---------------------|
| Kidney                                    |              | Nephropathy           | Minimal             |
|   | Renal Tubule | Pigmentation          | Minimal             |
| Liver                                     |              | Basophilic Focus      |                     |
|   |              | Fatty Change          | Focal, Minimal      |
|   | Bile Duct    | Hyperplasia           | Mild                |
| Note: COULD AS WELL BE A MIXED CELL FOCUS |              |                       |                     |
| Note: [ BASOPH FOCUS ] TGLs = 2-3         |              |                       |                     |
| Lymph Node                                | Mediastinal  | Infiltration Cellular | Histiocyte, Minimal |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Mild    |
| Spleen                                    |              | Infiltration Cellular | Histiocyte, Mild    |
| Thymus                                    |              | Pigmentation          | Minimal             |
| Uterus                                    |              | Polyp Stromal         |                     |
| Note: POLYP STROMAL TGLs = 1-6            |              |                       |                     |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 73

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Nose                    | Ovary                     | Pancreas                 | Parathyroid Gland          |
| Pituitary Gland         | Salivary Glands           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thymus                    | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**OBSERVATIONS**

|                                  |            |                       |                     |
|----------------------------------|------------|-----------------------|---------------------|
| Liver                            |            | Basophilic Focus      |                     |
| Note: BASOPH FOCUS               | TGLs = 3-3 |                       |                     |
| Lung                             |            | Atelectasis           | Minimal             |
|                                  |            | Infiltration Cellular | Histiocyte, Minimal |
| Lymph Node                       | Mandibular | Infiltration Cellular | Histiocyte, Minimal |
|                                  | Mesenteric | Infiltration Cellular | Histiocyte, Mild    |
| Mammary Gland                    |            | Fibroadenoma          |                     |
|                                  |            | Galactocele           |                     |
| [ Galactocele TGLS = 1-13+13.1 ] |            |                       |                     |
| Mesentery                        | Fat        | Necrosis              | Mild                |
| Note: NECROSIS                   | TGLs = 2-3 |                       |                     |
| Spleen                           |            | Infiltration Cellular | Histiocyte, Mild    |
| Thyroid Gland                    | C Cell     | Hyperplasia           | Minimal             |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 74

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 624

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Nose                    | Ovary                     | Pancreas                 | Parathyroid Gland          |
| Salivary Glands         | Skin                      | Stomach - Glandular      | Thyroid Gland              |
| Trachea                 | Urinary Bladder           | Uterus                   |                            |

**MISSING**

Lymph Node - Mandibular

**OBSERVATIONS**

|  |               |                       |                  |
|--|---------------|-----------------------|------------------|
| Brain  |               |                       |                  |
| Note: INDENTATION BECAUSE OF PITUITARY TUMOR |               |                       |                  |
| Kidney                                       |               | Nephropathy           | Moderate         |
| Liver  |               | Basophilic Focus      |                  |
|  |               | Fatty Change          | Diffuse, Mild    |
| Lymph Node                                   | Mesenteric    | Infiltration Cellular | Histiocyte, Mild |
| Mammary Gland                                |               | Galactocele           |                  |
| Pituitary Gland                              | Pars Distalis | Adenoma               |                  |
|  | Pars Distalis | Angiectasis           | Moderate         |
| Note: ADENOMA                                | TGLs = 3-8.1  |                       |                  |
| Spleen                                       |               | Infiltration Cellular | Histiocyte, Mild |
| Stomach                                      | Forestomach   | Acanthosis            | Moderate         |
|  | Forestomach   | Hyperkeratosis        | Mild             |
|  | Forestomach   | Necrosis              | Mild             |
| Note: NECROSIS                               | TGLs = 5-7    |                       |                  |
| Thymus                                       | Epithel Cell  | Thymoma Benign        |                  |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 75

TRT#: 4

SEX: Female

DAY ON TEST: 598

DOSE: VEHICLE 79 VF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mesenteric    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Pituitary Gland           |
| Salivary Glands          | Skin                       | Stomach - Forestomach   | Stomach - Glandular       |
| Trachea                  | Urinary Bladder            |                         |                           |

OBSERVATIONS

|                                 |              |                                  |                            |
|---------------------------------|--------------|----------------------------------|----------------------------|
| Adrenal Gland                   | Medulla      | Hyperplasia                      | Minimal                    |
| Heart                           |              | Leukemia Mononuclear             |                            |
| Kidney                          |              | Leukemia Mononuclear             |                            |
| Note: LEUKEMIA MONUC TGLs = 9-4 | Renal Tubule | Pigmentation                     | Mild                       |
| Liver                           |              | Fatty Change                     | Diffuse, Mild              |
| Note: LEUKEMIA MONUC TGLs = 8-3 |              | Leukemia Mononuclear             |                            |
| Lung                            |              | Carcinoma                        | Metastatic (Thyroid Gland) |
|                                 |              | Leukemia Mononuclear             |                            |
| Lymph Node                      | Mandibular   | Leukemia Mononuclear             |                            |
|                                 | Mediastinal  | Leukemia Mononuclear             |                            |
| Spleen                          |              | Hematopoietic Cell Proliferation | Mild                       |
|                                 |              | Leukemia Mononuclear             |                            |
| Note: LEUKEMIA MONUC TGLs = 6-3 |              | Leukemia Mononuclear             |                            |
| Thymus                          |              | Leukemia Mononuclear             |                            |
| Thyroid Gland                   | C Cell       | Carcinoma                        |                            |
|                                 | C Cell       | Hyperplasia                      | Mild                       |
| Note: CARCINOMA TGLs = 5-8      |              |                                  |                            |
| Uterus                          |              | Polyp Stromal                    |                            |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 76

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 750

**DOSE:** VEHICLE 79 VF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Skin                     | Stomach - Forestomach      | Stomach - Glandular     | Thymus                    |
| Trachea                  | Urinary Bladder            | Uterus                  |                           |

**OBSERVATIONS**

|   |               |                                  |          |
|---|---------------|----------------------------------|----------|
| Adrenal Gland                                   | Medulla       | Pheochromocytoma Benign          |          |
| Clitoral Gland                                  |               | Carcinoma                        |          |
| Note: CARCINOMA TGLs = 4-10.1                   |               |                                  |          |
| Kidney  | Renal Tubule  | Pigmentation                     | Minimal  |
| Liver   |               | Basophilic Focus                 |          |
|   |               | Leukemia Mononuclear             |          |
| Note: LEUKEMIA MONUC TGLs = 9-3                 |               |                                  |          |
| Lung  |               | Leukemia Mononuclear             |          |
| Note: LEUKEMIA MONUC TGLs = 6-1+2               |               |                                  |          |
| Mammary Gland                                   |               | Fibroadenoma                     | Multiple |
| Note: FIBROADENOMA TGLs = 5-13                  |               |                                  |          |
| Pituitary Gland                                 | Pars Distalis | Adenoma                          |          |
| Note: ADENOMA TGLs = 10-8                       |               |                                  |          |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild     |
|   |               | Leukemia Mononuclear             |          |
| [ Hematopoietic Cell Proliferation TGLS = 8-3 ] |               |                                  |          |
| Thyroid Gland                                   | C Cell        | Adenoma                          |          |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 78

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 707

**DOSE:** VEHICLE 79 VF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Harderian Gland            |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Mammary Gland           | Nose                      | Pancreas                 | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Thymus                     |
| Thyroid Gland           | Trachea                   | Urinary Bladder          | Uterus                     |

**MISSING**

|                         |       |                   |
|-------------------------|-------|-------------------|
| Lymph Node - Mandibular | Ovary | Parathyroid Gland |
|-------------------------|-------|-------------------|

**OBSERVATIONS**

|                 |  |                      |             |
|-----------------|--|----------------------|-------------|
| Eye             | Retina                                 | Atrophy              | Mild        |
|                 | Lens                                   | Cataract             | Mild        |
|                 |  | Synechia             | Mild        |
|                 | [ Atrophy TGLS = 2-13,3-13 ]           |                      |             |
| Heart           |  | Leukemia Mononuclear |             |
| Liver           |  | Basophilic Focus     |             |
|                 |  | Fatty Change         | Focal, Mild |
|                 | Bile Duct                              | Hyperplasia          | Mild        |
|                 |  | Leukemia Mononuclear |             |
|                 | [ Basophilic Focus TGLS = 11-3 ]       |                      |             |
| Lung            |  | Leukemia Mononuclear |             |
|                 | Note: LEUKEMIA MONUC TGLs = 6-1+2      |                      |             |
| Lymph Node      | Mesenteric                             | Leukemia Mononuclear |             |
| Pituitary Gland | Pars Distalis                          | Hyperplasia          | Mild        |
|                 | Pars Distalis                          | Pigmentation         | Mild        |
|                 | Note: HYPERPLASIA TGLs = 13-8          |                      |             |
| Spleen          |  | Leukemia Mononuclear |             |
|                 | [ Leukemia Mononuclear TGLS = 12-3.1 ] |                      |             |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 79

TRT#: 4

SEX: Female

DAY ON TEST: 744

DOSE: VEHICLE 79 VF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mesenteric |
| Mammary Gland             | Ovary                    | Pancreas                   | Parathyroid Gland       |
| Salivary Glands           | Skin                     | Stomach - Forestomach      | Stomach - Glandular     |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |

MISSING

Lymph Node - Mandibular

OBSERVATIONS

|                                 |               |                       |                     |
|---------------------------------|---------------|-----------------------|---------------------|
| Intestine Large                 | Colon         | Parasite              | Minimal             |
| Kidney                          | Renal Tubule  | Pigmentation          | Mild                |
| Liver                           |               | Basophilic Focus      |                     |
|                                 |               | Clear Cell Focus      |                     |
|                                 |               | Inflammation          | Granulomatous, Mild |
| Note: CLEAR CL FOCUS TGLs = 1-3 |               |                       |                     |
| Note: BASOPH FOCUS TGLs = 2-3   |               |                       |                     |
| Nose                            |               | Inflammation          | Acute, Minimal      |
| Pituitary Gland                 | Pars Distalis | Cyst                  |                     |
| Spleen                          |               | Infiltration Cellular | Histiocyte, Mild    |
| Uterus                          | Cervix        | Hemorrhage            | Mild                |
| Note: HEMORRHAGE TGLs = 3-6     |               |                       |                     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                            |                                 |                         |
|----------------------|----------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 80 | <b>TRT#:</b> 4             | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 750 |
|                      | <b>DOSE:</b> VEHICLE 79 VF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    |
| Lymph Node - Mesenteric | Ovary                     | Pancreas                 | Parathyroid Gland          |
| Pituitary Gland         | Salivary Glands           | Skin                     | Stomach - Forestomach      |
| Stomach - Glandular     | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         | Uterus                    |                          |                            |

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**MISSING**

Mammary Gland

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**OBSERVATIONS**

|                                      |              |                                  |                        |
|--------------------------------------|--------------|----------------------------------|------------------------|
| Kidney                               |              | Nephropathy                      | Minimal                |
|                                      | Renal Tubule | Pigmentation                     | Minimal                |
| Liver                                |              | Basophilic Focus                 |                        |
|                                      |              | Inflammation                     | Granulomatous, Minimal |
| Lung                                 |              | Alveolar/Bronchiolar Carcinoma   |                        |
|                                      |              | Infiltration Cellular            | Histiocyte, Moderate   |
| Note: [ ALV BRON CARC ] TGLs = 2-2.1 |              |                                  |                        |
| Nose                                 |              | Hemorrhage                       | Mild                   |
| Spleen                               |              | Hematopoietic Cell Proliferation | Mild                   |
|                                      |              | Infiltration Cellular            | Histiocyte, Mild       |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 81

TRT#: 5

SEX: Female

DAY ON TEST: 749

DOSE: 0.025 G/KG 79 LF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Medulla  | Bone                    | Brain                     | Clitoral Gland          |
| Esophagus                | Heart                   | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular  | Nose                    | Ovary                     | Pancreas                |
| Parathyroid Gland        | Salivary Glands         | Skin                      | Stomach - Forestomach   |
| Stomach - Glandular      | Trachea                 | Urinary Bladder           | Uterus                  |

OBSERVATIONS

|   |               |                       |                  |
|---|---------------|-----------------------|------------------|
| Adrenal Gland<br>Note: DEGEN TGLs = 6-8   | Cortex        | Degeneration          | Cystic, Moderate |
| Bone Marrow                               |               | Pigmentation          | Minimal          |
| Intestine Small                           | Duodenum      | Pigmentation          | Minimal          |
| Kidney                                    |               | Nephropathy           | Minimal          |
|   | Renal Tubule  | Pigmentation          | Minimal          |
| Liver                                     | Bile Duct     | Hyperplasia           | Mild             |
|   |               | Leukemia Mononuclear  |                  |
|   |               | Pigmentation          | Minimal          |
| [ Hyperplasia TGLS = 7-3,8-3 ]            |               |                       |                  |
| Lung<br>Note: INFILTRAT CELL TGLs = 2-1+2 |               | Infiltration Cellular | Histiocyte, Mild |
|   |               | Pigmentation          | Minimal          |
| Lymph Node                                | Mesenteric    | Infiltration Cellular | Histiocyte, Mild |
|   | Pancreatic    | Leukemia Mononuclear  |                  |
|   | Mesenteric    | Pigmentation          | Mild             |
|   | Pancreatic    | Pigmentation          | Mild             |
| Note: LEUKEMIA MONUC TGLs = 5-9.1         |               |                       |                  |
| Mammary Gland                             |               | Fibroadenoma          |                  |
| Note: FIBROADENOMA TGLs = 1-13+13.1       |               |                       |                  |
| Pituitary Gland                           | Pars Distalis | Adenoma               |                  |
|   | Pars Distalis | Angiectasis           | Mild             |
| Note: ADENOMA TGLs = 9-8                  |               |                       |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 81 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |        |                      |         |
|---|--------|----------------------|---------|
| Spleen  |        | Leukemia Mononuclear |         |
| [ Leukemia Mononuclear TGLS = 3-3.1+3.2,4-3.1+3.2 ] |        |                      |         |
| Thymus  |        | Leukemia Mononuclear |         |
|   |        | Pigmentation         | Minimal |
| Thyroid Gland                                       | C Cell | Hyperplasia          | Minimal |
| PRIMARY CAUSE OF DEATH                              | -      |                      |         |

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 82

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Medulla  | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Nose                       | Ovary                   | Pancreas                  |
| Parathyroid Gland        | Salivary Glands            | Skin                    | Trachea                   |
| Urinary Bladder          | Uterus                     |                         |                           |

**OBSERVATIONS**

|   |  |  |                                     |
|---|--|--|-------------------------------------|
| Adrenal Gland<br>Note: HYPERPLASIA TGLs = 5-8                               | Cortex                                 | Hyperplasia  | Mild                                |
| Clitoral GI<br>Note: DISTENDED  |  |  |                                     |
| Heart   |  | Cardiomyopathy   | Mild                                |
| Kidney<br>Note: CYST TGLs = 6-4   | Renal Tubule                           | Cyst<br>Pigmentation   | Minimal                             |
| Liver<br>Note: LEUKEMIA MONUC TGLs = 8-3<br>Note: ANOM HEPAT LOB TGLs = 7-3 |  | Basophilic Focus<br>Clear Cell Focus<br>Hepatodiaphragmatic Nodule<br>Leukemia Mononuclear<br>Pigmentation | Minimal                             |
| Lung  |  | Infiltration Cellular<br>Leukemia Mononuclear  | Histiocyte, Minimal                 |
| Lymph Node<br>Note: PIGMENT TGLs = 4-8                                      | Mesenteric<br>Mandibular<br>Mesenteric | Infiltration Cellular<br>Pigmentation<br>Pigmentation  | Histiocyte, Mild<br>Minimal<br>Mild |
| Mammary Gland   |  | Fibroadenoma<br>Galactocele  |                                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 82 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                  |               |                         |         |
|----------------------------------|---------------|-------------------------|---------|
| [ Galactoceles TGLS = 1-13 ]     |               |                         |         |
| Pituitary Gland                  | Pars Distalis | Adenoma                 |         |
|                                  | Pars Distalis | Angiectasis             | Mild    |
| Note: ADENOMA TGLs = 9-8         |               |                         |         |
| Spleen                           |               | Leukemia Mononuclear    |         |
|                                  |               | Pigmentation            | Mild    |
| Stomach                          | Forestomach   | Acanthosis              | Mild    |
|                                  | Glandular     | Fibrosis                | Minimal |
|                                  | Forestomach   | Hyperkeratosis          | Mild    |
|                                  | Forestomach   | Squamous Cell Papilloma |         |
| Note: PAPILLOMA SQUA TGLs = 10-7 |               |                         |         |
| Thymus                           |               | Pigmentation            | Minimal |
| Thyroid Gland                    | C Cell        | Hyperplasia             | Mild    |

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:28  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

|                      |   |   |  |
|----------------------|---|---|--|
| <b>ANIMAL ID:</b> 83 | <b>TRT#:</b> 5<br><b>DOSE:</b> 0.025 G/KG 79 LF | <b>SEX:</b> Female<br><b>DISP:</b> Terminal Sacrifice | <b>DAY ON TEST:</b> 743<br><b>HISTO:</b> |
|----------------------|---|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       | Ovary                   |
| Parathyroid Gland         | Salivary Glands          | Skin                       | Stomach - Forestomach   |
| Thyroid Gland             | Trachea                  | Urinary Bladder            | Uterus                  |

**OBSERVATIONS**

|                                  |               |                       |                     |
|----------------------------------|---------------|-----------------------|---------------------|
| Heart                            |               | Cardiomyopathy        | Mild                |
| Kidney                           |               | Nephropathy           | Minimal             |
|                                  | Renal Tubule  | Pigmentation          | Minimal             |
| Liver                            |               | Basophilic Focus      |                     |
|                                  |               | Clear Cell Focus      |                     |
|                                  |               | Pigmentation          | Minimal             |
| Note: CLEAR CL FOCUS TGLs = 10-3 |               |                       |                     |
| Lung                             |               | Infiltration Cellular | Histiocyte, Minimal |
| Lymph Node                       | Mediastinal   | Infiltration Cellular | Histiocyte, Minimal |
|                                  | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|                                  | Mandibular    | Pigmentation          | Minimal             |
|                                  | Mediastinal   | Pigmentation          | Minimal             |
|                                  | Mesenteric    | Pigmentation          | Moderate            |
|                                  | Pancreatic    | Pigmentation          | Mild                |
| Note: PIGMENT TGLs = 5-9         |               |                       |                     |
| Note: PIGMENT TGLs = 7-8         |               |                       |                     |
| Mammary Gland                    |               | Fibroadenoma          |                     |
|                                  |               | Galactocele           |                     |
| [ Galactocele TGLS = 6-13 ]      |               |                       |                     |
| Pancreas                         | Acinus        | Adenoma               |                     |
| Note: ADENOMA TGLs = 4-9         |               |                       |                     |
| Pituitary Gland                  | Pars Distalis | Adenoma               |                     |
|                                  | Pars Distalis | Angiectasis           | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 83 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 743 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |             |   |                                     |
|---------------|-------------|---|-------------------------------------|
| Note: ADENOMA | TGLs = 11-8 |   |                                     |
| Spleen        |             | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation | Mild<br>Histiocyte, Minimal<br>Mild |
| Stomach       | Glandular   | Pigmentation<br>Fibrosis  | Hemosiderin, Minimal<br>Minimal     |
| Thymus        | Glandular   | Pigmentation  | Minimal                             |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                    |                         |
|----------------------|-------------------------------|--------------------|-------------------------|
| <b>ANIMAL ID:</b> 84 | <b>TRT#:</b> 5                | <b>SEX:</b> Female | <b>DAY ON TEST:</b> 177 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Dead  | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

|                         |                         |                         |                 |
|-------------------------|-------------------------|-------------------------|-----------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone                    | Bone Marrow     |
| Brain                   | Clitoral Gland          | Esophagus               | Heart           |
| Intestine Large - Cecum | Intestine Large - Colon | Islets, Pancreatic      | Kidney          |
| Liver                   | Lymph Node - Mandibular | Lymph Node - Mesenteric | Nose            |
| Ovary                   | Pancreas                | Pituitary Gland         | Salivary Glands |
| Skin                    | Spleen                  | Stomach - Glandular     | Thymus          |
| Trachea                 | Urinary Bladder         | Uterus                  |                 |

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**MISSING**

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

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**AUTO PRECLUDES DIAG.**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Thyroid Gland            |                            |                         |                           |

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**OBSERVATIONS**

|                             |             |                |          |
|-----------------------------|-------------|----------------|----------|
| Lung                        |             | Congestion     | Moderate |
| [ Congestion TGLS = 3-1+2 ] |             |                |          |
| Stomach                     | Forestomach | Hyperkeratosis | Mild     |

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 86

TRT#: 5

SEX: Female

DAY ON TEST: 590

DOSE: 0.025 G/KG 79 LF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Bone                       | Bone Marrow             | Brain                     | Esophagus                |
| Heart                      | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Mammary Gland              | Nose                    | Ovary                     | Parathyroid Gland        |
| Salivary Glands            | Skin                    | Trachea                   | Urinary Bladder          |
| Uterus                     |                         |                           |                          |

MISSING

Pituitary Gland

OBSERVATIONS

|  |              |                       |                     |
|--|--------------|-----------------------|---------------------|
| Adrenal Gland  | Cortex       | Leukemia Mononuclear  |                     |
|  | Medulla      | Leukemia Mononuclear  |                     |
| Clitoral Gland   |              | Adenoma               |                     |
| Note: [ ADENOMA ] TGLs = 3-10                              |              |                       |                     |
| Note: MORE LIKE SQUAMOUS CELL CARCINOMA IN SITU            |              |                       |                     |
| Kidney   | Renal Tubule | Pigmentation          | Minimal             |
| Liver  |              | Fatty Change          | Diffuse, Mild       |
|  |              | Leukemia Mononuclear  |                     |
| Note: LEUKEMIA MONUC TGLs = 8-3                            |              |                       |                     |
| Lung   |              | Infiltration Cellular | Histiocyte, Minimal |
|  |              | Leukemia Mononuclear  |                     |
| Lymph Node   | Mandibular   | Infiltration Cellular | Histiocyte, Minimal |
|  | Mediastinal  | Infiltration Cellular | Histiocyte, Mild    |
|  | Mesenteric   | Infiltration Cellular | Histiocyte, Minimal |
|  | Mandibular   | Leukemia Mononuclear  |                     |
|  | Mediastinal  | Leukemia Mononuclear  |                     |
|  | Mesenteric   | Leukemia Mononuclear  |                     |
|  | Mesenteric   | Pigmentation          | Mild                |
| Note: STARRY SKIED PATTERN. MORE LIKE LYMPHOCYTIC LEUKEMIA |              |                       |                     |
| Note: LEUKEMIA MONUC TGLs = 4-9,9-8                        |              |                       |                     |
| Pancreas   |              | Leukemia Mononuclear  |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                       |                         |
|----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 86 | <b>TRT#:</b> 5                | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 590 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                      |             |   |                     |
|--------------------------------------|-------------|---|---------------------|
| Spleen                               |             | Infiltration Cellular<br>Leukemia Mononuclear | Histiocyte, Minimal |
| Note: LEUKEMIA MONUC TGLs = 7-3      |             |   |                     |
| Stomach                              | Glandular   | Erosion                                       | Minimal             |
|                                      | Glandular   | Fibrosis                                      | Mild                |
|                                      | Forestomach | Hyperkeratosis                                | Minimal             |
|                                      | Glandular   | Hyperplasia                                   | Mild                |
|                                      | Glandular   | Metaplasia                                    | Minimal             |
|                                      | Glandular   | Pigmentation                                  | Minimal             |
|                                      | Fat         | Proliferation                                 | Minimal             |
| Note: AREAS OF INTESTINAL METAPLASIA |             |   |                     |
| Thymus                               |             | Leukemia Mononuclear                          |                     |
| Thyroid Gland                        | C Cell      | Hyperplasia                                   | Minimal             |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 87

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Clitoral Gland           | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Thyroid Gland             |
| Trachea                 | Urinary Bladder          | Uterus                  |                           |

**OBSERVATIONS**

|                                      |               |                                  |                         |
|--------------------------------------|---------------|----------------------------------|-------------------------|
| Clitoral Gland                       |               |                                  |                         |
| Note: DESQUAMATED MATERIAL IN A DUCT |               |                                  |                         |
| Heart                                |               | Cardiomyopathy                   | Mild                    |
| Intestine Small                      | Duodenum      | Pigmentation                     | Minimal                 |
| Kidney                               | Papilla       | Mineralization                   | Minimal                 |
|                                      |               | Nephropathy                      | Mild                    |
|                                      | Renal Tubule  | Pigmentation                     | Mild                    |
| Liver                                |               | Basophilic Focus                 |                         |
|                                      |               | Inflammation                     | Granulomatous, Moderate |
|                                      |               | Pigmentation                     | Mild                    |
| Lung                                 |               | Infiltration Cellular            | Histiocyte, Mild        |
|                                      |               | Pigmentation                     | Minimal                 |
| Lymph Node                           | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild        |
|                                      | Mandibular    | Pigmentation                     | Minimal                 |
|                                      | Mesenteric    | Pigmentation                     | Mild                    |
| [ Pigmentation TGLS = 3-8 ]          |               |                                  |                         |
| Mammary Gland                        |               | Fibroadenoma                     |                         |
|                                      |               | Galactocele                      |                         |
| [ Galactocele TGLS = 1-10+13 ]       |               |                                  |                         |
| Pituitary Gland                      | Pars Distalis | Adenoma                          |                         |
|                                      | Pars Distalis | Angiectasis                      | Mild                    |
| Note: ADENOMA                        | TGLs = 4-8    |                                  |                         |
| Spleen                               |               | Hematopoietic Cell Proliferation | Mild                    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 87

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                    |             |                |                   |
|------------------------------------|-------------|----------------|-------------------|
|                                    |             | Pigmentation   | Mild              |
|                                    |             | Pigmentation   | Hemosiderin, Mild |
| Stomach                            | Forestomach | Acanthosis     | Mild              |
|                                    | Forestomach | Hyperkeratosis | Mild              |
|                                    | Glandular   | Mineralization | Mild              |
| Note: MINERALIZATION IN MUSCULARIS |             |                |                   |
| Thymus                             |             | Pigmentation   | Minimal           |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 88

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Clitoral Gland           | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland            | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Stomach - Forestomach     |
| Thyroid Gland           | Trachea                  | Urinary Bladder         | Uterus                    |

**OBSERVATIONS**

|                 |               |                                  |                     |
|-----------------|---------------|----------------------------------|---------------------|
| Heart           |               | Cardiomyopathy                   | Mild                |
| Intestine Small | Duodenum      | Pigmentation                     | Minimal             |
| Kidney          |               | Nephropathy                      | Minimal             |
|                 | Renal Tubule  | Pigmentation                     | Mild                |
| Liver           |               | Basophilic Focus                 |                     |
|                 |               | Inflammation                     | Granulomatous, Mild |
|                 |               | Pigmentation                     | Minimal             |
| Lung            |               | Infiltration Cellular            | Histiocyte, Mild    |
|                 |               | Pigmentation                     | Minimal             |
| Lymph Node      | Mandibular    | Infiltration Cellular            | Histiocyte, Mild    |
|                 | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                 | Mesenteric    | Pigmentation                     | Mild                |
| Nose            |               | Inflammation                     | Acute, Minimal      |
| Pituitary Gland | Pars Distalis | Adenoma                          |                     |
|                 | Pars Distalis | Angiectasis                      | Mild                |
| Note: ADENOMA   | TGLs = 1-8    |                                  |                     |
| Spleen          |               | Hematopoietic Cell Proliferation | Mild                |
|                 |               | Infiltration Cellular            | Histiocyte, Mild    |
|                 |               | Pigmentation                     | Mild                |
|                 |               | Pigmentation                     | Hemosiderin, Mild   |
| Stomach         | Glandular     | Fibrosis                         | Minimal             |
|                 | Glandular     | Metaplasia                       | Minimal             |
|                 | Glandular     | Pigmentation                     | Minimal             |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 88

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Thymus

Pigmentation

Minimal

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 90

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Bone Marrow             |
| Brain                    | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular  | Mammary Gland           | Nose                      | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Stomach - Forestomach     | Thyroid Gland           |
| Trachea                  | Urinary Bladder         |                           |                         |

**OBSERVATIONS**

|                          |               |                                  |                        |
|--------------------------|---------------|----------------------------------|------------------------|
| Clitoral Gland           |               | Adenoma                          |                        |
| [ Adenoma TGLS = 1-10 ]  |               |                                  |                        |
| Heart                    |               | Cardiomyopathy                   | Mild                   |
| Intestine Small          | Duodenum      | Pigmentation                     | Minimal                |
| Kidney                   | Renal Tubule  | Pigmentation                     | Minimal                |
| Liver                    |               | Basophilic Focus                 |                        |
|                          |               | Inflammation                     | Granulomatous, Minimal |
|                          |               | Pigmentation                     | Minimal                |
| Lung                     |               | Infiltration Cellular            | Histiocyte, Minimal    |
| Lymph Node               | Mediastinal   | Infiltration Cellular            | Histiocyte, Mild       |
|                          | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild       |
|                          | Pancreatic    | Infiltration Cellular            | Histiocyte, Mild       |
|                          | Mediastinal   | Pigmentation                     | Minimal                |
|                          | Mesenteric    | Pigmentation                     | Mild                   |
|                          | Pancreatic    | Pigmentation                     | Moderate               |
| Note: PIGMENT TGLs = 3-9 |               |                                  |                        |
| Ovary                    |               | Hyperplasia                      | Tubular, Mild          |
| Pancreas                 | Acinus        | Hyperplasia                      | Mild                   |
| Pituitary Gland          | Pars Distalis | Adenoma                          |                        |
| Spleen                   |               | Hematopoietic Cell Proliferation | Moderate               |
|                          |               | Pigmentation                     | Minimal                |
| Stomach                  | Glandular     | Fibrosis                         | Mild                   |
|                          | Glandular     | Hyperplasia                      | Minimal                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 90

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Glandular

Metaplasia

Minimal

Thymus

Pigmentation

Mild

Uterus

Polyp Stromal

Note: POLYP STROMAL TGLs = 5-6

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 91      **TRT#:** 5      **SEX:** Female      **DAY ON TEST:** 749  
**DOSE:** 0.025 G/KG 79 LF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                     | Clitoral Gland          | Esophagus                | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            | Pancreas                |
| Parathyroid Gland         | Salivary Glands         | Skin                     | Stomach - Forestomach   |
| Stomach - Glandular       | Thyroid Gland           | Trachea                  | Urinary Bladder         |

**OBSERVATIONS**

|                                   |                |                       |                        |
|-----------------------------------|----------------|-----------------------|------------------------|
| Intestine Small                   | Duodenum       | Pigmentation          | Minimal                |
| Kidney                            | Renal Tubule   | Nephropathy           | Minimal                |
|                                   |                | Pigmentation          | Minimal                |
| Liver                             |                | Basophilic Focus      |                        |
|                                   |                | Inflammation          | Granulomatous, Minimal |
|                                   |                | Pigmentation          | Mild                   |
| Lung                              | Alveolar Epith | Hyperplasia           | Mild                   |
|                                   |                | Infiltration Cellular | Histiocyte, Minimal    |
| Note: HYPERPLASIA      TGLs = 3-1 |                |                       |                        |
| Lymph Node                        | Mediastinal    | Infiltration Cellular | Histiocyte, Mild       |
|                                   | Mesenteric     | Infiltration Cellular | Histiocyte, Mild       |
|                                   | Pancreatic     | Infiltration Cellular | Histiocyte, Mild       |
|                                   | Mandibular     | Pigmentation          | Mild                   |
|                                   | Mediastinal    | Pigmentation          | Mild                   |
|                                   | Mesenteric     | Pigmentation          | Mild                   |
|                                   | Pancreatic     | Pigmentation          | Moderate               |
| Note: PIGMENT      TGLs = 4-9     |                |                       |                        |
| Nose                              |                | Inflammation          | Acute, Minimal         |
| Ovary                             |                | Cyst                  |                        |
| Note: CYST      TGLs = 1-6        |                |                       |                        |
| Pituitary Gland                   | Pars Distalis  | Adenoma               |                        |
|                                   | Pars Distalis  | Angiectasis           | Mild                   |
| Note: ADENOMA      TGLs = 6-8     |                |                       |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 91

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

|        |                                  |                     |
|--------|----------------------------------|---------------------|
| Spleen | Hematopoietic Cell Proliferation | Mild                |
|        | Infiltration Cellular            | Histiocyte, Minimal |
|        | Pigmentation                     | Hemosiderin, Mild   |
|        | Pigmentation                     | Mild                |
| Thymus | Pigmentation                     | Minimal             |
| Uterus | Polyp Stromal                    |                     |

Note: POLYP STROMAL TGLs = 2-6

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 92

TRT#: 5

SEX: Female

DAY ON TEST: 749

DOSE: 0.025 G/KG 79 LF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Islets, Pancreatic  
Pancreas  
Stomach - Forestomach  
Uterus

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Large - Rectum  
Lymph Node - Mandibular  
Parathyroid Gland  
Thymus

Bone  
Esophagus  
Intestine Small - Ileum  
Nose  
Salivary Glands  
Trachea

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Jejunum  
Ovary  
Skin  
Urinary Bladder

OBSERVATIONS

Heart  
Intestine Small  
Kidney  
  
Liver

Duodenum  
Papilla  
  
Bile Duct

Cardiomyopathy  
Pigmentation  
Mineralization  
Nephropathy  
Basophilic Focus  
Hyperplasia  
Inflammation  
Leukemia Mononuclear  
Mixed Cell Focus  
Pigmentation

Mild  
Minimal  
Minimal  
Mild  
Mild  
Granulomatous, Minimal  
  
Minimal

Note: MIXED CL FOCUS TGLs = 8-3.1  
[ Basophilic Focus TGLS = 7-3+3.1,8-3+3.1 ]

Lung  
  
Lymph Node

Mesenteric  
Mesenteric

Infiltration Cellular  
Leukemia Mononuclear  
Infiltration Cellular  
Pigmentation

Histiocyte, Minimal  
  
Histiocyte, Mild  
Mild

Note: PIGMENT TGLs = 6-8  
Mammary Gland  
[ Fibroadenoma TGLS = 1-13,2-14 ]

Pituitary Gland

Pars Distalis  
Pars Distalis  
Pars Distalis

Fibroadenoma  
  
Angiectasis  
Cyst  
Hyperplasia

Multiple  
  
Mild  
Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 92 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |           |                      |         |
|---|-----------|----------------------|---------|
| Spleen<br>Note: LEUKEMIA MONUC TGLs = 5-3 |           | Leukemia Mononuclear |         |
| Stomach                                   | Glandular | Fibrosis             | Mild    |
|   | Glandular | Hyperplasia          | Minimal |
|   | Glandular | Metaplasia           | Minimal |
|   | Glandular | Pigmentation         | Minimal |
|   | Fat       | Proliferation        | Minimal |
| Note: FIBROSIS TGLs = 10-7                |           |                      |         |
| Thyroid Gland                             | C Cell    | Carcinoma            |         |
| Note: [ CARCINOMA ] TGLs = 9-8            |           |                      |         |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 93

TRT#: 5

SEX: Female

DAY ON TEST: 721

DOSE: 0.025 G/KG 79 LF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Bone                     | Bone Marrow             | Brain                     | Clitoral Gland          |
| Esophagus                | Harderian Gland         | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Nose                    | Ovary                     | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Stomach - Forestomach     | Trachea                 |
| Urinary Bladder          | Uterus                  |                           |                         |

OBSERVATIONS

|                                     |             |                            |                     |
|-------------------------------------|-------------|----------------------------|---------------------|
| Adrenal Gland                       | Cortex      | Leukemia Mononuclear       |                     |
|                                     | Medulla     | Leukemia Mononuclear       |                     |
|                                     | Medulla     | Pheochromocytoma Benign    |                     |
| Note: LEUKEMIA MONUC TGLs = 6-8     |             |                            |                     |
| Eye                                 | Lens        | Cataract                   | Mild                |
| [ Cataract TGLS = 2-13 ]            |             |                            |                     |
| Heart                               |             | Leukemia Mononuclear       |                     |
| Note: LEUKEMIA MONUC TGLs = 4-2     |             |                            |                     |
| Intestine Small                     | Duodenum    | Hyperplasia                | Adenomatous, Mild   |
|                                     | Duodenum    | Pigmentation               | Minimal             |
| Kidney                              |             | Nephropathy                | Minimal             |
| Liver                               |             | Fatty Change               | Diffuse, Moderate   |
|                                     |             | Hepatodiaphragmatic Nodule |                     |
|                                     |             | Leukemia Mononuclear       |                     |
|                                     |             | Pigmentation               | Minimal             |
| Note: ANOM HEPAT LOB TGLs = 9-3     |             |                            |                     |
| Note: LEUKEMIA MONUC TGLs = 7-3,9-3 |             |                            |                     |
| Lung                                |             | Infiltration Cellular      | Histiocyte, Minimal |
|                                     |             | Leukemia Mononuclear       |                     |
| Note: LEUKEMIA MONUC TGLs = 5-1+2   |             |                            |                     |
| Lymph Node                          | Mesenteric  | Infiltration Cellular      | Histiocyte, Mild    |
|                                     | Mandibular  | Pigmentation               | Mild                |
|                                     | Mediastinal | Pigmentation               | Mild                |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

| ANIMAL ID: 93                                   | TRT#: 5<br>DOSE: 0.025 G/KG 79 LF                                    | SEX: Female<br>DISP: Moribund   | DAY ON TEST: 721<br>HISTO:                            |
|---|--|---|---|
| <b>ORGAN AND ACCOUNTABLE SITE STATUS</b>        |  |   |   |
| Pancreas  | Mesenteric<br>Acinus   | Pigmentation<br>Atrophy<br>Leukemia Mononuclear   | Mild<br>Moderate                                      |
| Pituitary Gland<br>Note: ANGIECTASIS TGLs = 8-8 | Pars Distalis  | Angiectasis   | Mild  |
| Spleen  |  | Hematopoietic Cell Proliferation<br>Leukemia Mononuclear  | Mild  |
| Stomach   | Glandular<br>Glandular<br>Glandular<br>Glandular<br>Glandular<br>Fat | Pigmentation<br>Erosion<br>Fibrosis<br>Hyperplasia<br>Metaplasia<br>Pigmentation<br>Proliferation | Mild<br>Minimal<br>Mild<br>Mild<br>Minimal<br>Minimal |
| Thymus  |  | Pigmentation  | Minimal   |
| Thyroid Gland                                   | C Cell<br>C Cell   | Adenoma<br>Hyperplasia  | Mild  |
| PRIMARY CAUSE OF DEATH                          | -  |   |   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 95                      **TRT#:** 5                      **SEX:** Female                      **DAY ON TEST:** 639  
**DOSE:** 0.025 G/KG 79 LF                      **DISP:** Moribund                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Brain                   |
| Clitoral Gland            | Esophagus               | Harderian Gland          | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     | Ovary                   |
| Pancreas                  | Parathyroid Gland       | Salivary Glands          | Skin                    |
| Trachea                   | Urinary Bladder         | Uterus                   |                         |

**OBSERVATIONS**

|                                       |             |                       |                        |
|---------------------------------------|-------------|-----------------------|------------------------|
| Bone Marrow                           |             | Pigmentation          | Minimal                |
| Ear                                   | Canal       | Abscess               | Marked                 |
| Eye                                   | Lens        | Cataract              | Mild                   |
| Note: CATARACT      TGLs = 1-14       |             |                       |                        |
| Harderian Gland                       |             |                       |                        |
| Note: PIGMENT DIFFERENT FROM PRPHYRIN |             |                       |                        |
| Intestine Small                       | Duodenum    | Pigmentation          | Minimal                |
| Kidney                                | Papilla     | Mineralization        | Minimal                |
|                                       |             | Nephropathy           | Mild                   |
| Liver                                 |             | Fatty Change          | Focal, Mild            |
|                                       |             | Inflammation          | Granulomatous, Minimal |
|                                       |             | Necrosis              | Minimal                |
| Lung                                  |             | Pigmentation          | Minimal                |
|                                       |             | Hemorrhage            | Minimal                |
|                                       |             | Infiltration Cellular | Histiocyte, Minimal    |
| Note: HEMORRHAGE      TGLs = 3-2      |             |                       |                        |
| Lymph Node                            | Mesenteric  | Depletion Lymphoid    | Moderate               |
|                                       | Mediastinal | Infiltration Cellular | Histiocyte, Minimal    |
|                                       | Mandibular  | Pigmentation          | Minimal                |
|                                       | Mediastinal | Pigmentation          | Minimal                |
|                                       | Mesenteric  | Pigmentation          | Moderate               |
| Mammary Gland                         |             | Fibroadenoma          |                        |
|                                       |             | Galactocele           |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 95

TRT#: 5

SEX: Female

DAY ON TEST: 639

DOSE: 0.025 G/KG 79 LF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

|   |  |   |   |
|---|--|---|---|
| Note: FIBROADENOMA<br>TGLs = 2-14<br>Pituitary Gland      | Pars Distalis<br>Pars Distalis   | Adenoma<br>Angiectasis  | Moderate  |
| Note: ADENOMA<br>TGLs = 6-8<br>Spleen                     |  | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation<br>Pigmentation | Mild<br>Histiocyte, Mild<br>Hemosiderin, Mild<br>Mild |
| Note: HEMA CELL PROL<br>TGLs = 5-3<br>Stomach             | Glandular<br>Forestomach<br>Glandular<br>Glandular<br>Glandular<br>Fat | Fibrosis<br>Hyperkeratosis<br>Hyperplasia<br>Metaplasia<br>Pigmentation<br>Proliferation  | Mild<br>Mild<br>Mild<br>Mild<br>Minimal<br>Minimal    |
| Note: ACANTHOSIS<br>TGLs = 4-7<br>Thymus<br>Thyroid Gland | C Cell   | Pigmentation<br>Hyperplasia   | Minimal<br>Minimal                                    |
| PRIMARY CAUSE OF DEATH                                    | -  |   |   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 96                      **TRT#:** 5                      **SEX:** Female                      **DAY ON TEST:** 549  
**DOSE:** 0.025 G/KG 79 LF                      **DISP:** Accident                      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                          |                    |
|-------------------------|-------------------------|--------------------------|--------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone                     | Bone Marrow        |
| Brain                   | Clitoral Gland          | Esophagus                | Heart              |
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum | Islets, Pancreatic |
| Kidney                  | Mammary Gland           | Nose                     | Ovary              |
| Pancreas                | Pituitary Gland         | Salivary Glands          | Skin               |
| Stomach - Forestomach   | Urinary Bladder         | Uterus                   |                    |

**MISSING**

Parathyroid Gland

**AUTO PRECLUDES DIAG.**

|                            |                         |                           |               |
|----------------------------|-------------------------|---------------------------|---------------|
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Thyroid Gland |
| Trachea                    |                         |                           |               |

**OBSERVATIONS**

|                                     |             |                       |                     |
|-------------------------------------|-------------|-----------------------|---------------------|
| Liver                               |             | Fatty Change          | Focal, Mild         |
|                                     |             | Pigmentation          | Minimal             |
| Lung                                |             | Edema                 | Moderate            |
|                                     |             | Inflammation          | Acute, Moderate     |
|                                     |             | Pigmentation          | Mild                |
| Note: EDEMA            TGLs = 4-1+2 |             |                       |                     |
| Note: CLUSTERS OF BACTERIA          |             |                       |                     |
| Lymph Node                          | Mediastinal | Hemorrhage            | Mild                |
|                                     | Mandibular  | Infiltration Cellular | Histiocyte, Minimal |
|                                     | Mesenteric  | Infiltration Cellular | Histiocyte, Mild    |
| Note: INFILTRAT CELL    TGLs = 2-9  |             |                       |                     |
| Note: HEMORRHAGE      TGLs = 3-2    |             |                       |                     |
| Nose                                |             |                       |                     |
| Note: BLOOD IN TURBINATES           |             |                       |                     |
| Spleen                              |             | Infiltration Cellular | Histiocyte, Mild    |
| Note: INFILTRAT CELL    TGLs = 6-3  |             |                       |                     |
| Stomach                             | Glandular   | Fibrosis              | Mild                |
|                                     | Glandular   | Metaplasia            | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 96

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 549

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Accident

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Thymus

Pigmentation

Minimal

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 98

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 707

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland            | Nose                    | Ovary                     |
| Pancreas                | Parathyroid Gland        | Salivary Glands         | Trachea                   |
| Urinary Bladder         | Uterus                   |                         |                           |

**MISSING**

Clitoral Gland

**OBSERVATIONS**

|                              |               |                                  |                     |
|------------------------------|---------------|----------------------------------|---------------------|
| Intestine Small              | Duodenum      | Pigmentation                     | Minimal             |
| Kidney                       | Renal Tubule  | Pigmentation                     | Minimal             |
| Liver                        |               | Basophilic Focus                 |                     |
|                              |               | Leukemia Mononuclear             |                     |
|                              |               | Pigmentation                     | Minimal             |
| Lung                         |               | Infiltration Cellular            | Histiocyte, Minimal |
|                              |               | Leukemia Mononuclear             |                     |
| Lymph Node                   | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                              | Mandibular    | Pigmentation                     | Minimal             |
|                              | Mesenteric    | Pigmentation                     | Mild                |
| Note: PIGMENT TGLs = 7-8     |               |                                  |                     |
| Pituitary Gland              | Pars Distalis | Angiectasis                      | Minimal             |
| Note: ANGIECTASIS TGLs = 8-8 |               |                                  |                     |
| Skin                         | Subcut Tiss   | Fibroma                          |                     |
|                              | Subcut Tiss   | Sarcoma                          |                     |
| Note: BURNT OUT FIBROMA      |               |                                  |                     |
| Note: SARCOMA TGLs = 2-13    |               |                                  |                     |
| [ Fibroma TGLs = 3-14+14.1 ] |               |                                  |                     |
| Spleen                       |               | Hematopoietic Cell Proliferation | Mild                |
|                              |               | Leukemia Mononuclear             |                     |
|                              |               | Pigmentation                     | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                       |                         |
|----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 98 | <b>TRT#:</b> 5                | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 707 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |             |                |         |
|-------------------------------------|-------------|----------------|---------|
| [ Pigmentation TGLS = 5-3 ]         |             |                |         |
| Stomach                             | Forestomach | Acanthosis     | Mild    |
|                                     | Glandular   | Fibrosis       | Mild    |
|                                     | Forestomach | Hyperkeratosis | Mild    |
|                                     | Glandular   | Hyperplasia    | Minimal |
|                                     | Glandular   | Metaplasia     | Minimal |
|                                     | Glandular   | Pigmentation   | Minimal |
|                                     | Fat         | Proliferation  | Minimal |
| Note: HYPERKERATOSIS TGLs = 6-7,9-7 |             |                |         |
| Thymus                              |             | Pigmentation   | Minimal |
| Thyroid Gland                       | C Cell      | Hyperplasia    | Minimal |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 99

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Bone Marrow             | Brain                    |
| Clitoral Gland          | Esophagus                 | Intestine Large - Cecum | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Nose                    | Ovary                     | Pancreas                | Parathyroid Gland        |
| Salivary Glands         | Skin                      | Stomach - Forestomach   | Stomach - Glandular      |
| Thyroid Gland           | Trachea                   | Urinary Bladder         | Uterus                   |

**MISSING**

Intestine Large - Colon

**OBSERVATIONS**

|                                 |              |                            |                     |
|---------------------------------|--------------|----------------------------|---------------------|
| Adrenal Gland                   | Medulla      | Hyperplasia                | Mild                |
|                                 | Medulla      | Pheochromocytoma Benign    |                     |
| Heart                           |              | Cardiomyopathy             | Mild                |
| Intestine Small                 | Duodenum     | Pigmentation               | Minimal             |
| Kidney                          |              | Nephropathy                | Minimal             |
|                                 | Renal Tubule | Pigmentation               | Minimal             |
| Liver                           |              | Basophilic Focus           |                     |
|                                 |              | Hepatodiaphragmatic Nodule |                     |
|                                 |              | Inflammation               | Granulomatous, Mild |
|                                 |              | Mixed Cell Focus           |                     |
|                                 |              | Pigmentation               | Mild                |
| Note: ANOM HEPAT LOB TGLs = 5-3 |              |                            |                     |
| Lung                            |              | Atelectasis                | Mild                |
|                                 |              | Congestion                 | Mild                |
|                                 |              | Infiltration Cellular      | Histiocyte, Minimal |
|                                 |              | Pigmentation               | Minimal             |
| Note: CONGESTION TGLs = 2-1+2   |              |                            |                     |
| Lymph Node                      | Mediastinal  | Infiltration Cellular      | Histiocyte, Minimal |
|                                 | Mesenteric   | Infiltration Cellular      | Histiocyte, Mild    |
|                                 | Mandibular   | Pigmentation               | Mild                |
|                                 | Mediastinal  | Pigmentation               | Minimal             |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                      |                               |                                 |                         |
|----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 99 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                      | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                               |               |                                  |                   |
|-------------------------------|---------------|----------------------------------|-------------------|
| Mesentery                     | Mesenteric    | Pigmentation                     | Mild              |
| [ Necrosis TGLS = 3-13,4-13 ] | Fat           | Necrosis                         | Mild              |
| Pituitary Gland               | Pars Distalis | Hyperplasia                      | Mild              |
| Spleen                        |               | Hematopoietic Cell Proliferation | Mild              |
|                               |               | Infiltration Cellular            | Histiocyte, Mild  |
|                               |               | Pigmentation                     | Mild              |
|                               |               | Pigmentation                     | Hemosiderin, Mild |
| Thymus                        |               | Pigmentation                     | Minimal           |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 100

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Clitoral Gland           |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     |
| Pancreas                | Parathyroid Gland         | Salivary Glands         | Skin                     |
| Stomach - Forestomach   | Stomach - Glandular       | Trachea                 | Uterus                   |

**OBSERVATIONS**

|                                 |              |                         |                     |
|---------------------------------|--------------|-------------------------|---------------------|
| Adrenal Gland                   | Cortex       | Hyperplasia             | Mild                |
|                                 | Medulla      | Hyperplasia             | Mild                |
|                                 | Cortex       | Leukemia Mononuclear    |                     |
|                                 | Medulla      | Leukemia Mononuclear    |                     |
|                                 | Medulla      | Pheochromocytoma Benign |                     |
| Note: LEUKEMIA MONUC TGLs = 5-8 |              |                         |                     |
| Heart                           |              | Cardiomyopathy          | Mild                |
|                                 |              | Leukemia Mononuclear    |                     |
| Intestine Small                 | Duodenum     | Pigmentation            | Minimal             |
| Kidney                          |              | Leukemia Mononuclear    |                     |
|                                 |              | Nephropathy             | Minimal             |
|                                 | Renal Tubule | Pigmentation            | Minimal             |
| Liver                           |              | Basophilic Focus        |                     |
|                                 | Bile Duct    | Hyperplasia             | Mild                |
|                                 |              | Leukemia Mononuclear    |                     |
|                                 |              | Pigmentation            | Minimal             |
| [ Basophilic Focus TGLS = 6-3 ] |              |                         |                     |
| Lung                            |              | Infiltration Cellular   | Histiocyte, Minimal |
|                                 |              | Leukemia Mononuclear    |                     |
| Lymph Node                      | Mandibular   | Leukemia Mononuclear    |                     |
|                                 | Mediastinal  | Leukemia Mononuclear    |                     |
|                                 | Mesenteric   | Leukemia Mononuclear    |                     |
| Note: LEUKEMIA MONUC TGLs = 1-9 |              |                         |                     |
| Mammary Gland                   |              | Fibroadenoma            |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 100

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |               |                      |         |
|---|---------------|----------------------|---------|
| Note: FIBROADENOMA                          | TGLs = 2-13   |                      |         |
| Ovary                                       |               | Leukemia Mononuclear |         |
| Pituitary Gland                             | Pars Distalis | Adenoma              |         |
| Note: ADENOMA                               | TGLs = 7-8    |                      |         |
| Spleen                                      |               | Leukemia Mononuclear |         |
| [ Leukemia Mononuclear TGLS = 3-3.1,4-3.1 ] |               |                      |         |
| Thymus                                      |               | Leukemia Mononuclear |         |
|   |               | Pigmentation         | Minimal |
| Thyroid Gland                               | C Cell        | Adenoma              |         |
| Urinary Bladder                             |               | Leukemia Mononuclear |         |
| PRIMARY CAUSE OF DEATH                      | -             |                      |         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 103

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 645

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Bone                     | Bone Marrow             | Brain                     |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Kidney                   | Mammary Gland           | Nose                      |
| Ovary                   | Pancreas                 | Parathyroid Gland       | Salivary Glands           |
| Skin                    | Thymus                   | Trachea                 | Urinary Bladder           |
| Uterus                  |                          |                         |                           |

**MISSING**

Lymph Node - Mandibular

**OBSERVATIONS**

|   |               |                       |                        |
|---|---------------|-----------------------|------------------------|
| Adrenal Gland   | Medulla       | Hyperplasia           | Minimal                |
| Intestine Small   | Duodenum      | Pigmentation          | Minimal                |
| Liver   |               | Basophilic Focus      |                        |
|   |               | Fatty Change          | Focal, Minimal         |
|   |               | Inflammation          | Granulomatous, Mild    |
|   |               | Leukemia Mononuclear  |                        |
|   |               | Pigmentation          | Minimal                |
| Note: LEUKEMIA MONUC TGLs = 3-3+3.1                                       |               |                       |                        |
| Lung  |               | Atelectasis           | Minimal                |
|   |               | Infiltration Cellular | Histiocyte, Mild       |
|   |               | Inflammation          | Granulomatous, Minimal |
|   |               | Pigmentation          | Mild                   |
| Note: TALL BRONCHIAL EPITHELIUM<br>[ Infiltration Cellular TGLS = 2-1+2 ] |               |                       |                        |
| Lymph Node  | Pancreatic    | Leukemia Mononuclear  |                        |
|   | Mesenteric    | Pigmentation          | Mild                   |
| Note: PIGMENT TGLs = 6-8  |               |                       |                        |
| Note: LEUKEMIA MONUC TGLs = 5-9   |               |                       |                        |
| Pituitary Gland   | Pars Distalis | Adenoma               |                        |
|   | Pars Distalis | Angiectasis           | Moderate               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 103 | <b>TRT#:</b> 5                | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 645 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                        |                |                                      |                   |
|------------------------|----------------|--------------------------------------|-------------------|
| Note: ADENOMA          | TGLs = 4-8     |                                      |                   |
| Spleen                 |                | Leukemia Mononuclear<br>Pigmentation | Mild              |
|                        |                | Pigmentation                         | Hemosiderin, Mild |
| Stomach                |                | Acanthosis                           | Mild              |
|                        | Forestomach    | Fibrosis                             | Mild              |
|                        | Glandular      | Hyperkeratosis                       | Mild              |
|                        | Forestomach    | Hyperplasia                          | Minimal           |
|                        | Glandular      | Inflammation                         | Acute, Minimal    |
|                        | Glandular      | Metaplasia                           | Minimal           |
| Note: ACANTHOSIS       | TGLs = 7-7+7.1 |                                      |                   |
| Thyroid Gland          |                | Hyperplasia                          | Minimal           |
| PRIMARY CAUSE OF DEATH | -              |                                      |                   |

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 104

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Ovary                     | Pancreas                 | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Stomach - Glandular      | Thymus                     |
| Trachea                 | Urinary Bladder           | Uterus                   |                            |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|   |                   |                                  |                         |
|---|-------------------|----------------------------------|-------------------------|
| Intest Large                                    |                   |                                  |                         |
| Note: MUCOSAL EPITHELIUM OF CECUM HAS DRIED OUT |                   |                                  |                         |
| Kidney  | Renal Tubule      | Pigmentation                     | Minimal                 |
| Liver   |                   | Basophilic Focus                 |                         |
|   |                   | Inflammation                     | Granulomatous, Moderate |
|   |                   | Pigmentation                     | Mild                    |
| Note: INFLAMMATION TGLs = 7-3.1                 |                   |                                  |                         |
| Lung  |                   | Infiltration Cellular            | Histiocyte, Mild        |
| Note: INFILTRAT CELL TGLs = 4-1+2,5-1+2         |                   |                                  |                         |
| Lymph Node                                      | Pancreatic        | Angiectasis                      | Moderate                |
|   | Mediastinal       | Infiltration Cellular            | Histiocyte, Minimal     |
|   | Mandibular        | Pigmentation                     | Minimal                 |
|   | Mediastinal       | Pigmentation                     | Minimal                 |
|   | Mesenteric        | Pigmentation                     | Mild                    |
|   | Pancreatic        | Pigmentation                     | Mild                    |
| Note: ANGIECTASIS TGLs = 6-9                    |                   |                                  |                         |
| Pituitary Gland                                 | Pars Distalis     | Adenoma                          |                         |
| Spleen  |                   | Hematopoietic Cell Proliferation | Mild                    |
|   |                   | Pigmentation                     | Mild                    |
| Thyroid Gland                                   | Bilateral, C Cell | Carcinoma                        |                         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 104

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: [ CARCINOMA ] TGLs = 2-8,3-8

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 105

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Stomach - Forestomach     | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |               |                                  |                   |
|--|---------------|----------------------------------|-------------------|
| Kidney                                 | Papilla       | Mineralization                   | Minimal           |
|  |               | Nephropathy                      | Mild              |
| Liver                                  |               | Angiectasis                      | Minimal           |
|  |               | Basophilic Focus                 |                   |
|  |               | Pigmentation                     | Minimal           |
| Note: BASOPH FOCUS TGLs = 3-3          |               |                                  |                   |
| Lung                                   |               | Infiltration Cellular            | Histiocyte, Mild  |
| [ Infiltration Cellular TGLS = 1-1+2 ] |               |                                  |                   |
| Lymph Node                             | Mandibular    | Pigmentation                     | Minimal           |
|  | Mesenteric    | Pigmentation                     | Mild              |
| Note: PIGMENT TGLs = 2-8               |               |                                  |                   |
| Pituitary Gland                        | Pars Distalis | Hyperplasia                      | Mild              |
| Note: [ HYPERPLASIA ] TGLs = 4-8       |               |                                  |                   |
| Spleen                                 |               | Hematopoietic Cell Proliferation | Mild              |
|  |               | Infiltration Cellular            | Histiocyte, Mild  |
|  |               | Pigmentation                     | Mild              |
|  |               | Pigmentation                     | Hemosiderin, Mild |
| Stomach                                | Glandular     | Erosion                          | Minimal           |
|  | Glandular     | Hyperplasia                      | Adenomatous, Mild |
| Note: HYPERPLASIA TGLs = 5-7           |               |                                  |                   |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

---

**ANIMAL ID:** 105

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Thymus

Cyst

Pigmentation

Minimal

Note: CYST LINED BY SQUAMOUS EPITHELIUM

Thyroid Gland

C Cell

Hyperplasia

Minimal

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 106

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 595

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Medulla  | Bone                       | Bone Marrow             | Brain                     |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Thyroid Gland              | Trachea                 | Urinary Bladder           |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|   |               |                                  |                  |
|---|---------------|----------------------------------|------------------|
| Adrenal Gland   | Cortex        | Degeneration                     | Moderate         |
|   | Cortex        | Pigmentation                     | Ceroid, Mild     |
| Note: PIGMENT   | TGLs = 4-8    |                                  |                  |
| Clitoral Gland  |               | Adenoma                          |                  |
| Note: ADENOMA   | TGLs = 2-10.1 |                                  |                  |
| Kidney  | Renal Tubule  | Nephropathy                      | Minimal          |
|   |               | Pigmentation                     | Minimal          |
| Liver   |               | Mixed Cell Focus                 |                  |
| Lung  |               | Atelectasis                      | Mild             |
|   |               | Pigmentation                     | Mild             |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES. TALL EPITHELIUM |               |                                  |                  |
| Note: PIGMENT   | TGLs = 3-2    |                                  |                  |
| [ Atelectasis TGLS = 7-2 ]                              |               |                                  |                  |
| Lymph Node  | Mediastinal   | Infiltration Cellular            | Histiocyte, Mild |
|   | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild |
|   | Mesenteric    | Pigmentation                     | Mild             |
| Pituitary Gland   | Pars Distalis | Adenoma                          |                  |
|   | Pars Distalis | Angiectasis                      | Mild             |
| Note: ADENOMA   | TGLs = 6-8    |                                  |                  |
| Spleen  |               | Hematopoietic Cell Proliferation | Moderate         |
| Note: MEGAKARYOCYTES INCREASED                          |               |                                  |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 106

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 595  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|         |           |                |         |
|---------|-----------|----------------|---------|
| Stomach | Glandular | Fibrosis       | Mild    |
|         | Glandular | Hyperplasia    | Mild    |
|         | Glandular | Metaplasia     | Minimal |
|         | Glandular | Mineralization | Mild    |
| Thymus  | Fat       | Proliferation  | Minimal |
|         |           | Pigmentation   | Minimal |
| Uterus  |           | Polyp Stromal  |         |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 107

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 660

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Esophagus                |
| Heart                   | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Ovary                    |
| Pancreas                | Parathyroid Gland         | Pituitary Gland         | Salivary Glands          |
| Skin                    | Thyroid Gland             | Trachea                 | Urinary Bladder          |
| Uterus                  |                           |                         |                          |

**MISSING**

|                |        |
|----------------|--------|
| Clitoral Gland | Thymus |
|----------------|--------|

**OBSERVATIONS**

|                 |             |                                  |                     |
|-----------------|-------------|----------------------------------|---------------------|
| Adrenal Gland   | Cortex      | Leukemia Mononuclear             |                     |
|                 | Medulla     | Leukemia Mononuclear             |                     |
| Intestine Small | Duodenum    | Pigmentation                     | Minimal             |
| Kidney          |             | Leukemia Mononuclear             |                     |
| Liver           |             | Basophilic Focus                 |                     |
|                 |             | Leukemia Mononuclear             |                     |
|                 |             | Pigmentation                     | Minimal             |
| Lung            |             | Infiltration Cellular            | Histiocyte, Minimal |
|                 |             | Leukemia Mononuclear             |                     |
|                 |             | Pigmentation                     | Minimal             |
| Lymph Node      | Mesenteric  | Infiltration Cellular            | Histiocyte, Mild    |
|                 | Mandibular  | Pigmentation                     | Mild                |
|                 | Mesenteric  | Pigmentation                     | Mild                |
| Mammary Gland   |             | Fibroadenoma                     |                     |
|                 |             |                                  |                     |
|                 |             |                                  |                     |
|                 |             |                                  |                     |
| Mesentery       | Fat         | Necrosis                         | Mild                |
| Note: NECROSIS  | TGLs = 3-10 |                                  |                     |
| Nose            |             | Inflammation                     | Acute, Minimal      |
| Spleen          |             | Hematopoietic Cell Proliferation | Mild                |
|                 |             | Leukemia Mononuclear             |                     |
|                 |             | Pigmentation                     | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 107

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 660  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|         |             |                |         |
|---------|-------------|----------------|---------|
| Stomach | Forestomach | Acanthosis     | Mild    |
|         | Glandular   | Fibrosis       | Mild    |
|         | Forestomach | Hyperkeratosis | Mild    |
|         | Glandular   | Hyperplasia    | Minimal |
|         | Glandular   | Metaplasia     | Mild    |
|         | Fat         | Proliferation  | Minimal |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 108

TRT#: 5

SEX: Female

DAY ON TEST: 692

DOSE: 0.025 G/KG 79 LF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Islets, Pancreatic  
Parathyroid Gland  
Thyroid Gland

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Large - Rectum  
Lymph Node - Mandibular  
Salivary Glands  
Urinary Bladder

Bone  
Esophagus  
Intestine Small - Ileum  
Mammary Gland  
Skin  
Uterus

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Jejunum  
Pancreas  
Stomach - Forestomach

MISSING

Pituitary Gland

OBSERVATIONS

Heart

Cardiomyopathy

Mild

Mineralization

Mild

Intestine Small

Duodenum

Pigmentation

Minimal

Kidney

Renal Tubule

Adenoma

Cortex

Mineralization

Mild

Nephropathy

Mild

Note: MINERALIZATION TGLs = 3-4

Note: NEPHROPATHY TGLs = 4-4

Liver

Basophilic Focus

Leukemia Mononuclear

Pigmentation

Minimal

Note: LEUKEMIA MONUC TGLs = 6-3

Lung

Infiltration Cellular

Histiocyte, Mild

Pigmentation

Mild

Lymph Node

Mediastinal

Infiltration Cellular

Histiocyte, Minimal

Mesenteric

Infiltration Cellular

Histiocyte, Mild

Mediastinal

Pigmentation

Mild

Mesenteric

Pigmentation

Mild

Note: PIGMENT TGLs = 1-2

Nose

Inflammation

Acute, Mild

Ovary

Cyst

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 108 | <b>TRT#:</b> 5                | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 692 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

|                                   |            |                                  |             |
|-----------------------------------|------------|----------------------------------|-------------|
| Note: CYST                        | TGLs = 2-6 |                                  |             |
| Spleen                            |            | Depletion Lymphoid               | Mild        |
|                                   |            | Hematopoietic Cell Proliferation | Mild        |
|                                   |            | Leukemia Mononuclear             |             |
|                                   |            | Pigmentation                     | Mild        |
| [ Depletion Lymphoid TGLS = 5-3 ] |            |                                  |             |
| Stomach                           | Glandular  | Fibrosis                         | Mild        |
|                                   | Glandular  | Hyperplasia                      | Minimal     |
|                                   | Glandular  | Metaplasia                       | Mild        |
|                                   | Glandular  | Mineralization                   | Mild        |
|                                   | Glandular  | Pigmentation                     | Minimal     |
| Thymus                            |            | Pigmentation                     | Minimal     |
| Trachea                           |            | Inflammation                     | Acute, Mild |

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**PRIMARY CAUSE OF DEATH** -

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Animal Note: DYSTROPHIC MINERALIZATION IN HEART, KIDNEY & STOMACH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 109

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 694

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    | Ovary                     |
| Parathyroid Gland        | Salivary Glands            | Skin                    | Stomach - Forestomach     |
| Trachea                  | Urinary Bladder            |                         |                           |

**OBSERVATIONS**

|   |               |                       |                     |
|---|---------------|-----------------------|---------------------|
| Brain                                   |               | Hemorrhage            | Minimal             |
| Heart                                   |               | Leukemia Mononuclear  |                     |
| Kidney                                  | Papilla       | Mineralization        | Mild                |
|   | Renal Tubule  | Pigmentation          | Minimal             |
| Liver                                   |               | Fatty Change          | Focal, Mild         |
|   |               | Leukemia Mononuclear  |                     |
|   |               | Pigmentation          | Mild                |
| Note: LEUKEMIA MONUC TGLs = 5-3         |               |                       |                     |
| Lung                                    |               | Infiltration Cellular | Histiocyte, Minimal |
|   |               | Leukemia Mononuclear  |                     |
| Lymph Node                              | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|   | Mediastinal   | Pigmentation          | Minimal             |
|   | Mesenteric    | Pigmentation          | Mild                |
| Note: PIGMENT TGLs = 4-8                |               |                       |                     |
| Mammary Gland                           |               | Fibroadenoma          |                     |
|   |               | Galactocele           |                     |
| Note: GALACTOCELE TGLs = 1-10,2-13+13.1 |               |                       |                     |
| Pancreas                                |               | Leukemia Mononuclear  |                     |
| Pituitary Gland                         | Pars Distalis | Angiectasis           | Mild                |
|   | Pars Distalis | Hyperplasia           | Moderate            |
|   |               | Leukemia Mononuclear  |                     |
| Note: ANGIECTASIS TGLs = 6-8            |               |                       |                     |
| Spleen                                  |               | Leukemia Mononuclear  |                     |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 109 | <b>TRT#:</b> 5                | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 694 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                             |           |                      |         |
|-----------------------------|-----------|----------------------|---------|
| [ Pigmentation TGLS = 3-3 ] |           | Pigmentation         | Mild    |
| Stomach                     | Glandular | Leukemia Mononuclear |         |
|                             | Glandular | Mineralization       | Mild    |
| Thymus                      |           | Leukemia Mononuclear |         |
|                             |           | Pigmentation         | Minimal |
| Thyroid Gland               | C Cell    | Hyperplasia          | Minimal |
|                             |           | Leukemia Mononuclear |         |
| Uterus                      |           | Leukemia Mononuclear |         |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 110

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 570

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                    |                         |                         |
|--------------------------|--------------------|-------------------------|-------------------------|
| Bone                     | Bone Marrow        | Brain                   | Clitoral Gland          |
| Esophagus                | Eye                | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Islets, Pancreatic | Lymph Node - Mandibular | Pancreas                |
| Parathyroid Gland        | Salivary Glands    | Skin                    | Stomach - Forestomach   |
| Thyroid Gland            | Trachea            | Urinary Bladder         |                         |

**MISSING**

Mammary Gland

**AUTO PRECLUDES DIAG.**

Intestine Small - Duodenum

Intestine Small - Ileum

Intestine Small - Jejunum

**OBSERVATIONS**

|                      |               |                                  |                 |
|----------------------|---------------|----------------------------------|-----------------|
| Adrenal Gland        | Cortex        | Leukemia Mononuclear             |                 |
|                      | Medulla       | Leukemia Mononuclear             |                 |
| Heart                |               | Cardiomyopathy                   | Mild            |
|                      |               | Leukemia Mononuclear             |                 |
| Kidney               |               | Leukemia Mononuclear             |                 |
| Note: LEUKEMIA MONUC | TGLs = 8-4    |                                  |                 |
| Liver                |               | Fatty Change                     | Diffuse, Mild   |
|                      |               | Leukemia Mononuclear             |                 |
| Note: LEUKEMIA MONUC | TGLs = 9-3    |                                  |                 |
| Lung                 |               | Leukemia Mononuclear             |                 |
| Note: LEUKEMIA MONUC | TGLs = 3-1+2  |                                  |                 |
| Lymph Node           | Mesenteric    | Leukemia Mononuclear             |                 |
|                      | Pancreatic    | Leukemia Mononuclear             |                 |
| Nose                 |               | Inflammation                     | Acute, Moderate |
| Ovary                |               | Leukemia Mononuclear             |                 |
| Pituitary Gland      | Pars Distalis | Hyperplasia                      | Mild            |
| Note: HYPERPLASIA    | TGLs = 10-8   |                                  |                 |
| Spleen               |               | Hematopoietic Cell Proliferation | Mild            |
|                      |               | Leukemia Mononuclear             |                 |

[ Hematopoietic Cell Proliferation TGLS = 4-3.1 ]

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 110

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Dead

**DAY ON TEST:** 570  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|         |             |                      |         |
|---------|-------------|----------------------|---------|
| Stomach | Glandular   | Fibrosis             | Minimal |
| Thymus  |             | Leukemia Mononuclear |         |
| Uterus  | Endometrium | Hyperplasia          | Mild    |
|         |             | Leukemia Mononuclear |         |
|         |             | Polyp Stromal        |         |

Note: POLYP STROMAL TGLs = 7-6.1

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:28  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 111      TRT#: 5      SEX: Female      DAY ON TEST: 688  
 DOSE: 0.025 G/KG 79 LF      DISP: Moribund      HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                          |                            |                         |
|-------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex  | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland          | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Islets, Pancreatic      | Mammary Gland            | Nose                       | Pancreas                |
| Parathyroid Gland       | Pituitary Gland          | Salivary Glands            | Skin                    |
| Stomach - Forestomach   | Thyroid Gland            | Trachea                    | Urinary Bladder         |

OBSERVATIONS

|   |              |                                  |                     |
|---|--------------|----------------------------------|---------------------|
| Adrenal Gland   | Medulla      | Hyperplasia                      | Mild                |
| Intestine Small   | Jejunum      | Pigmentation                     | Minimal             |
| Kidney  | Cortex       | Mineralization                   | Mild                |
|   | Renal Tubule | Pigmentation                     | Mild                |
| Liver   |              | Necrosis                         | Mild                |
|   |              | Pigmentation                     | Minimal             |
| Lung  |              | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node  | Mediastinal  | Infiltration Cellular            | Histiocyte, Mild    |
|   | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild    |
|   | Mandibular   | Pigmentation                     | Mild                |
|   | Mediastinal  | Pigmentation                     | Mild                |
|   | Mesenteric   | Pigmentation                     | Mild                |
| Ovary   |              | Degeneration                     | Cystic, Mild        |
| Note: DEGEN      TGLs = 5-6                             |              |                                  |                     |
| Spleen  |              | Hematopoietic Cell Proliferation | Moderate            |
| Stomach   | Glandular    | Erosion                          | Mild                |
|   | Glandular    | Fibrosis                         | Marked              |
|   | Glandular    | Inflammation                     | Mild                |
|   | Glandular    | Mineralization                   | Mild                |
|   | Glandular    | Polyp Adenomatous                | Mild                |
| Note: PROBABLY ADENOMATOUS POLYP,BUT TERM IS NOT IN PCT |              |                                  |                     |
| Note: [ INFLAMMATION ] TGLs = 2,3,7-7.1+7.2             |              |                                  |                     |
| Thymus  |              | Depletion Lymphoid               | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 111

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 688  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Uterus  
Note: HEMORRHAGE      TGLs = 6-6

Pigmentation  
Hemorrhage

Minimal  
Moderate

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 112

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 631

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    |
| Ovary                   | Pancreas                  | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Thymus                    | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**OBSERVATIONS**

|                                  |               |                                  |                     |
|----------------------------------|---------------|----------------------------------|---------------------|
| Kidney                           |               | Nephropathy                      | Mild                |
|                                  | Renal Tubule  | Pigmentation                     | Minimal             |
| Liver                            |               | Fatty Change                     | Diffuse, Marked     |
| Note: FATTY CHANGE               | TGLs = 5-3    |                                  |                     |
| Lung                             |               | Hemorrhage                       | Mild                |
|                                  |               | Infiltration Cellular            | Histiocyte, Minimal |
| Note: HEMORRHAGE                 | TGLs = 3-1    |                                  |                     |
| Lymph Node                       | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
| Mammary Gland                    |               | Fibroadenoma                     | Multiple            |
|                                  |               | Galactocele                      |                     |
| [ Galactocele TGLS = 1-13,2-14 ] |               |                                  |                     |
| Nose                             |               | Inflammation                     | Acute, Mild         |
| Pituitary Gland                  | Pars Distalis | Adenoma                          |                     |
|                                  | Pars Distalis | Angiectasis                      | Moderate            |
| Note: ADENOMA                    | TGLs = 6-8.1  |                                  |                     |
| Spleen                           |               | Hematopoietic Cell Proliferation | Mild                |
|                                  |               | Infiltration Cellular            | Histiocyte, Mild    |
| Stomach                          | Glandular     | Erosion                          | Mild                |
|                                  | Glandular     | Fibrosis                         | Moderate            |
|                                  | Forestomach   | Hyperkeratosis                   | Mild                |
|                                  | Glandular     | Hyperplasia                      | Minimal             |
|                                  | Glandular     | Metaplasia                       | Minimal             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 112

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 631  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |        |               |         |
|---------------|--------|---------------|---------|
| Thyroid Gland | Fat    | Proliferation | Minimal |
|               | C Cell | Adenoma       |         |
|               | C Cell | Hyperplasia   | Mild    |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                    |                         |
|-----------------------|-------------------------------|--------------------|-------------------------|
| <b>ANIMAL ID:</b> 114 | <b>TRT#:</b> 5                | <b>SEX:</b> Female | <b>DAY ON TEST:</b> 451 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Dead  | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                        |                         |                 |                         |
|------------------------|-------------------------|-----------------|-------------------------|
| Adrenal Gland - Cortex | Adrenal Gland - Medulla | Bone            | Bone Marrow             |
| Brain                  | Clitoral Gland          | Esophagus       | Heart                   |
| Islets, Pancreatic     | Kidney                  | Liver           | Lymph Node - Mandibular |
| Mammary Gland          | Nose                    | Ovary           | Pancreas                |
| Parathyroid Gland      | Pituitary Gland         | Salivary Glands | Skin                    |
| Spleen                 | Thymus                  | Trachea         | Uterus                  |

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**AUTO PRECLUDES DIAG.**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Stomach - Forestomach    | Stomach - Glandular        |
| Thyroid Gland           | Urinary Bladder           |                          |                            |

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**OBSERVATIONS**

|            |            |                       |                  |
|------------|------------|-----------------------|------------------|
| Lung       |            | Hemorrhage            | Moderate         |
| Lymph Node | Mesenteric | Infiltration Cellular | Histiocyte, Mild |
| Nose       |            |                       |                  |

Note: BLOODY CRUST AROUND THE NARES

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 115      **TRT#:** 5      **SEX:** Female      **DAY ON TEST:** 721  
**DOSE:** 0.025 G/KG 79 LF      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                    | Brain                    | Clitoral Gland          |
| Esophagus                 | Intestine Large - Cecum | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     | Pancreas                |
| Parathyroid Gland         | Skin                    | Stomach - Forestomach    | Trachea                 |

**OBSERVATIONS**

|  |              |                         |                     |
|--|--------------|-------------------------|---------------------|
| Adrenal Gland  | Medulla      | Pheochromocytoma Benign |                     |
| Bone Marrow  |              | Pigmentation            | Minimal             |
| Heart  |              | Leukemia Mononuclear    |                     |
|  |              | Thrombosis              | Mild                |
| Intestine Large  | Colon        | Erosion                 | Mild                |
|  | Colon        | Inflammation            | Acute, Moderate     |
| Intestine Small  | Duodenum     | Pigmentation            | Minimal             |
| Kidney   | Renal Tubule | Pigmentation            | Minimal             |
| Liver  |              | Angiectasis             | Minimal             |
|  |              | Basophilic Focus        |                     |
|  |              | Fatty Change            | Focal, Mild         |
|  |              | Leukemia Mononuclear    |                     |
|  |              | Pigmentation            | Mild                |
| <p>Note: LEUKEMIA MONUC TGLs = 11-3<br/>           Note: SUGGESTION OF A NEOPLASTIC NODULE IN<br/>           Note: THE SECTION CIRCLED</p> |              |                         |                     |
| Lung   |              | Infiltration Cellular   | Histiocyte, Minimal |
|  |              | Leukemia Mononuclear    |                     |
|  |              | Pigmentation            | Minimal             |
| <p>Note: LEUKEMIA MONUC TGLs = 6-1+2</p>   |              |                         |                     |
| Lymph Node   | Mediastinal  | Leukemia Mononuclear    |                     |
|  | Pancreatic   | Leukemia Mononuclear    |                     |
|  | Mandibular   | Pigmentation            | Mild                |
|  | Mediastinal  | Pigmentation            | Mild                |
|  | Mesenteric   | Pigmentation            | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

| ANIMAL ID: 115   | TRT#: 5       | SEX: Female          | DAY ON TEST: 721     |
|--|---------------|----------------------|----------------------|
| DOSE: 0.025 G/KG 79 LF   |               | DISP: Moribund       | HISTO:               |
| ORGAN AND ACCOUNTABLE SITE STATUS  |               |                      |                      |
| Note: PIGMENT TGLs = 10-8<br>Mammary Gland<br>[ Fibroadenoma TGLS = 2-10 ]<br>Ovary<br>Note: CYST TGLs = 7-6<br>Pituitary Gland<br>Salivary Glands<br>Spleen | Pancreatic    | Pigmentation         | Mild                 |
|  |               | Fibroadenoma         |                      |
|  |               | Cyst                 |                      |
| Note: LEUKEMIA MONUC TGLs = 9-3<br>Stomach   | Pars Distalis | Hyperplasia          | Moderate             |
|  |               | Leukemia Mononuclear |                      |
|  |               | Leukemia Mononuclear |                      |
|  |               | Pigmentation         | Hemosiderin, Minimal |
|  |               | Pigmentation         | Mild                 |
|  | Glandular     | Fibrosis             | Minimal              |
|  | Glandular     | Hyperplasia          | Minimal              |
|  | Glandular     | Metaplasia           | Minimal              |
|  | Glandular     | Pigmentation         | Minimal              |
| Thymus   |               | Pigmentation         | Minimal              |
| Thyroid Gland  | C Cell        | Hyperplasia          | Minimal              |
| Urinary Bladder  |               | Leukemia Mononuclear |                      |
| Uterus   |               | Leukemia Mononuclear |                      |
|  |               | Polyp Stromal        |                      |
| Note: POLYP STROMAL TGLs = 8-6   |               |                      |                      |
| PRIMARY CAUSE OF DEATH   | -             |                      |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 116

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 610  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Nose                       | Ovary                   | Pancreas                  |
| Parathyroid Gland        | Salivary Glands            | Skin                    | Stomach - Forestomach     |
| Stomach - Glandular      | Thyroid Gland              | Trachea                 | Urinary Bladder           |
| Uterus                   |                            |                         |                           |

**MISSING**

Adrenal Gland - Medulla

**OBSERVATIONS**

|                           |               |                       |                  |
|---------------------------|---------------|-----------------------|------------------|
| Heart                     |               | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC      | TGLs = 5-2    |                       |                  |
| Kidney                    |               | Leukemia Mononuclear  |                  |
| Liver                     |               | Fatty Change          | Diffuse, Mild    |
|                           |               | Leukemia Mononuclear  |                  |
|                           |               | Necrosis              | Mild             |
| Note: MORE LIKE CIRRHOSIS |               |                       |                  |
| [ Necrosis TGLS = 10-3 ]  |               |                       |                  |
| Lung                      |               | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC      | TGLs = 4-1+2  |                       |                  |
| Lymph Node                |               | Infiltration Cellular | Histiocyte, Mild |
|                           | Mesenteric    | Leukemia Mononuclear  |                  |
|                           | Mandibular    | Leukemia Mononuclear  |                  |
|                           | Mediastinal   | Leukemia Mononuclear  |                  |
|                           | Mesenteric    | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC      | TGLs = 6-2    |                       |                  |
| Mammary Gland             |               | Galactocele           |                  |
| Note: GALACTOCELE         | TGLs = 3-10   |                       |                  |
| Pituitary Gland           |               | Cyst                  |                  |
|                           | Pars Distalis | Hyperplasia           | Mild             |
|                           | Pars Distalis |                       |                  |
| Note: CYST                | TGLs = 11-8   |                       |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 116

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 610

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Spleen

Leukemia Mononuclear

Note: THICK FIBROUS CAPSULE. MORE LIKE LYMPHOCYTIC LEUKEMIA

[ Leukemia Mononuclear TGLS = 8-3.1,9-3.1 ]

Thymus

Leukemia Mononuclear

Pigmentation

Minimal

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 117

TRT#: 5

SEX: Female

DAY ON TEST: 464

DOSE: 0.025 G/KG 79 LF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Bone                     | Bone Marrow                | Brain                   | Clitoral Gland            |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Pituitary Gland         | Salivary Glands           |
| Skin                     | Stomach - Forestomach      | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            | Uterus                  |                           |

OBSERVATIONS

|   |                |                                  |                     |
|---|----------------|----------------------------------|---------------------|
| Adrenal Gland                               | Cortex         | Hemorrhage                       | Mild                |
|   | Medulla        | Hyperplasia                      | Mild                |
| Note: HEMORRHAGE                            | TGLs = 5-8     |                                  |                     |
| Kidney                                      | Renal Tubule   | Pigmentation                     | Minimal             |
| Liver                                       |                | Basophilic Focus                 |                     |
| Lung  |                | Atelectasis                      | Mild                |
|   |                | Infiltration Cellular            | Histiocyte, Minimal |
|   |                | Inflammation                     | Acute, Minimal      |
| Note: MUCINOUS MATERIAL IN MANY BRONCHIOLES |                |                                  |                     |
| Note: TALL CILIATED BRONCHIAL EPITHELIUM    |                |                                  |                     |
| Note: ATELECTASIS                           | TGLs = 3-1     |                                  |                     |
| Lymph Node                                  | Mandibular     | Infiltration Cellular            | Histiocyte, Minimal |
|   | Mesenteric     | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL                        | TGLs = 2-9,8-9 |                                  |                     |
| Spleen                                      |                | Hematopoietic Cell Proliferation | Mild                |
|   |                | Infiltration Cellular            | Histiocyte, Mild    |
| Stomach                                     | Glandular      | Erosion                          | Mild                |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
Test Type: CHRONIC  
Route: GAVAGE  
Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
Test Compound: Titanocene dichloride  
CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
Time Report Requested: 06:16:28  
First Dose M/F: NA / NA  
Lab: TSI MASON

ANIMAL ID: 119

TRT#: 5

SEX: Female

DAY ON TEST: 749

DOSE: 0.025 G/KG 79 LF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Salivary Glands          | Skin                       |
| Thymus                  | Trachea                   | Urinary Bladder          | Uterus                     |

MISSING

|                         |                   |
|-------------------------|-------------------|
| Lymph Node - Mandibular | Parathyroid Gland |
|-------------------------|-------------------|

OBSERVATIONS

|  |               |                                  |                            |
|--|---------------|----------------------------------|----------------------------|
| Kidney                                       |               | Nephropathy                      | Mild                       |
| Liver  |               | Basophilic Focus                 |                            |
|  |               | Inflammation                     | Granulomatous, Mild        |
|  |               | Mixed Cell Focus                 |                            |
|  |               | Pigmentation                     | Mild                       |
| Note: MIXED CL FOCUS TGLs = 7-3.1            |               |                                  |                            |
| Lung   |               | Carcinoma                        | Metastatic (Thyroid Gland) |
|  |               | Infiltration Cellular            | Histiocyte, Mild           |
| [ Infiltration Cellular TGLS = 4-1+2,5-1+2 ] |               |                                  |                            |
| Lymph Node                                   | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild           |
|  | Mesenteric    | Pigmentation                     | Mild                       |
| Note: PIGMENT TGLs = 8-8                     |               |                                  |                            |
| Mammary Gland                                |               | Fibroadenoma                     |                            |
| Note: FIBROADENOMA TGLs = 2-13+13.1          |               |                                  |                            |
| Pituitary Gland                              | Pars Distalis | Adenoma                          |                            |
|  | Pars Distalis | Angiectasis                      | Mild                       |
| Note: ADENOMA TGLs = 9-8                     |               |                                  |                            |
| Spleen                                       |               | Hematopoietic Cell Proliferation | Mild                       |
|  |               | Infiltration Cellular            | Histiocyte, Mild           |
|  |               | Pigmentation                     | Hemosiderin, Mild          |
|  |               | Pigmentation                     | Mild                       |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 119

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 749  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |                   |              |         |
|------------------------|-------------------|--------------|---------|
| Stomach                | Forestomach       | Acanthosis   | Mild    |
|                        | Glandular         | Metaplasia   | Minimal |
|                        | Glandular         | Pigmentation | Minimal |
| Note: ACANTHOSIS       | TGLs = 11-7.1     |              |         |
| Thyroid Gland          | Bilateral, C Cell | Carcinoma    |         |
| Note: CARCINOMA        | TGLs = 6-8        |              |         |
| PRIMARY CAUSE OF DEATH | -                 |              |         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                    |                         |
|-----------------------|-------------------------------|--------------------|-------------------------|
| <b>ANIMAL ID:</b> 121 | <b>TRT#:</b> 5                | <b>SEX:</b> Female | <b>DAY ON TEST:</b> 608 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Dead  | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

|                         |                          |                            |                    |
|-------------------------|--------------------------|----------------------------|--------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                       | Bone Marrow        |
| Brain                   | Clitoral Gland           | Esophagus                  | Heart              |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Duodenum | Islets, Pancreatic |
| Kidney                  | Mammary Gland            | Nose                       | Ovary              |
| Pancreas                | Parathyroid Gland        | Salivary Glands            | Skin               |
| Uterus                  |                          |                            |                    |

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**MISSING**

Spleen

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**AUTO PRECLUDES DIAG.**

|                         |                         |                           |               |
|-------------------------|-------------------------|---------------------------|---------------|
| Intestine Large - Cecum | Intestine Small - Ileum | Intestine Small - Jejunum | Thyroid Gland |
| Trachea                 | Urinary Bladder         |                           |               |

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**OBSERVATIONS**

|  |               |                  |          |
|--|---------------|------------------|----------|
| Liver  |               | Basophilic Focus |          |
| Lung   |               | Congestion       | Moderate |
|  |               | Edema            | Mild     |
|  |               | Hemorrhage       | Mild     |
| Note: CLUSTERS OF SMALL BLUE STAINED RODS. ?BACTERIA?<br>[ Congestion TGLS = 2-1+2 ] |               |                  |          |
| Lymph Node   | Mandibular    | Pigmentation     | Minimal  |
|  | Mesenteric    | Pigmentation     | Mild     |
| Pituitary Gland  | Pars Distalis | Adenoma          |          |
| Note: ADENOMA  | TGLs = 5-8    |                  |          |
| Stomach  | Glandular     | Fibrosis         | Mild     |
|  | Forestomach   | Hyperkeratosis   | Mild     |
| Thymus   |               | Pigmentation     | Minimal  |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 122

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 510

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lung                    |
| Lymph Node - Mandibular   | Mammary Gland            | Nose                       | Ovary                   |
| Pancreas                  | Parathyroid Gland        | Pituitary Gland            | Salivary Glands         |
| Skin                      | Stomach - Forestomach    | Thymus                     | Thyroid Gland           |
| Trachea                   | Urinary Bladder          | Uterus                     |                         |

**OBSERVATIONS**

|                                   |               |                                  |                  |
|-----------------------------------|---------------|----------------------------------|------------------|
| Clitoral Gland                    |               | Adenoma                          |                  |
| Note: ADENOMA                     | TGLs = 2-10.1 |                                  |                  |
| Liver                             |               | Basophilic Focus                 |                  |
| Lymph Node                        | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild |
| Spleen                            |               | Hematopoietic Cell Proliferation | Mild             |
| Stomach                           | Glandular     | Fibrosis                         | Mild             |
|                                   | Glandular     | Hyperplasia                      | Minimal          |
|                                   | Glandular     | Metaplasia                       | Minimal          |
| Note: FOCAL INTESTINAL METAPLASIA |               |                                  |                  |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 124

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Clitoral Gland           | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Stomach - Forestomach     |
| Stomach - Glandular     | Thymus                   | Trachea                 | Urinary Bladder           |
| Uterus                  |                          |                         |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                    |               |                                  |                        |
|--------------------|---------------|----------------------------------|------------------------|
| Heart              |               | Cardiomyopathy                   | Mild                   |
| Intestine Small    | Duodenum      | Pigmentation                     | Minimal                |
| Kidney             |               | Nephropathy                      | Mild                   |
| Liver              |               | Basophilic Focus                 |                        |
|                    |               | Inflammation                     | Granulomatous, Minimal |
|                    |               | Pigmentation                     | Minimal                |
| Note: BASOPH FOCUS | TGLs = 2-3    |                                  |                        |
| Lung               |               | Infiltration Cellular            | Histiocyte, Mild       |
| Lymph Node         | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal    |
|                    | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild       |
|                    | Mandibular    | Pigmentation                     | Mild                   |
|                    | Mediastinal   | Pigmentation                     | Mild                   |
|                    | Mesenteric    | Pigmentation                     | Mild                   |
|                    | Pancreatic    | Pigmentation                     | Mild                   |
| Note: PIGMENT      | TGLs = 4-8    |                                  |                        |
| Pituitary Gland    | Pars Distalis | Adenoma                          |                        |
| Note: ADENOMA      | TGLs = 3-8    |                                  |                        |
| Spleen             |               | Hematopoietic Cell Proliferation | Mild                   |
|                    |               | Infiltration Cellular            | Histiocyte, Mild       |
|                    |               | Pigmentation                     | Hemosiderin, Mild      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 124

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 749  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Thyroid Gland  
Note: ADENOMA      TGLs = 1-8

Bilateral, C Cell

Pigmentation  
Adenoma

Mild

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 125

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mesentery                  |
| Nose                    | Ovary                     | Pancreas                 | Parathyroid Gland          |
| Salivary Glands         | Skin                      | Stomach - Glandular      | Thyroid Gland              |
| Trachea                 |                           |                          |                            |

**MISSING**

Thymus

**OBSERVATIONS**

|                             |               |                       |                     |
|-----------------------------|---------------|-----------------------|---------------------|
| Kidney                      |               | Nephropathy           | Minimal             |
|                             | Renal Tubule  | Pigmentation          | Minimal             |
| Note: PIGMENT               | TGLs = 4-4    |                       |                     |
| Liver                       |               | Basophilic Focus      |                     |
|                             |               | Inflammation          | Granulomatous, Mild |
|                             |               | Mixed Cell Focus      |                     |
|                             |               | Pigmentation          | Mild                |
| Note: MIXED CL FOCUS        | TGLs = 3-3    |                       |                     |
| Lung                        |               | Infiltration Cellular | Histiocyte, Minimal |
|                             |               | Pigmentation          | Minimal             |
| Note: INFILTRAT CELL        | TGLs = 2-1+2  |                       |                     |
| Lymph Node                  | Mediastinal   | Infiltration Cellular | Histiocyte, Minimal |
|                             | Mandibular    | Pigmentation          | Minimal             |
|                             | Mediastinal   | Pigmentation          | Minimal             |
|                             | Mesenteric    | Pigmentation          | Mild                |
| Note: PIGMENT               | TGLs = 7-8    |                       |                     |
| Mammary Gland               |               | Fibroadenoma          |                     |
|                             |               | Galactocele           |                     |
| [ Galactocele TGLS = 1-13 ] |               |                       |                     |
| Pituitary Gland             | Pars Distalis | Angiectasis           | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 125

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                             |            |               |                                  |                      |
|-----------------------------|------------|---------------|----------------------------------|----------------------|
| Note: ANGIECTASIS<br>Spleen | TGLs = 5-8 | Pars Distalis | Hyperplasia                      | Mild                 |
|                             |            |               | Hematopoietic Cell Proliferation | Mild                 |
|                             |            |               | Infiltration Cellular            | Histiocyte, Minimal  |
|                             |            |               | Pigmentation                     | Hemosiderin, Minimal |
|                             |            |               | Pigmentation                     | Mild                 |
| Stomach                     |            | Forestomach   | Acanthosis                       | Mild                 |
| Uterus                      |            |               | Polyp Stromal                    |                      |
| Note: POLYP STROMAL         | TGLs = 6-6 |               |                                  |                      |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 126

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland            | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       | Ovary                   |
| Pancreas                  | Parathyroid Gland        | Salivary Glands            | Skin                    |
| Thyroid Gland             | Trachea                  | Urinary Bladder            |                         |

**OBSERVATIONS**

|                                  |               |                                  |                     |
|----------------------------------|---------------|----------------------------------|---------------------|
| Adrenal Gland                    | Medulla       | Hyperplasia                      | Mild                |
|                                  | Medulla       | Pheochromocytoma Benign          |                     |
| Kidney                           |               | Nephropathy                      | Minimal             |
|                                  | Renal Tubule  | Pigmentation                     | Minimal             |
| Liver                            |               | Basophilic Focus                 |                     |
|                                  |               | Degeneration                     | Cystic, Minimal     |
|                                  |               | Fatty Change                     | Focal, Minimal      |
|                                  |               | Inflammation                     | Granulomatous, Mild |
|                                  |               | Pigmentation                     | Mild                |
| Lung                             |               | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node                       | Mandibular    | Pigmentation                     | Minimal             |
|                                  | Mesenteric    | Pigmentation                     | Mild                |
| Note: PIGMENT TGLs = 6-8         |               |                                  |                     |
| Mammary Gland                    |               | Fibroadenoma                     | Multiple            |
|                                  |               | Galactocele                      |                     |
| [ Galactocele TGLS = 1-13,2-14 ] |               |                                  |                     |
| Pituitary Gland                  | Pars Distalis | Hyperplasia                      | Mild                |
| Spleen                           |               | Hematopoietic Cell Proliferation | Mild                |
|                                  |               | Infiltration Cellular            | Histiocyte, Mild    |
|                                  |               | Pigmentation                     | Hemosiderin, Mild   |
|                                  |               | Pigmentation                     | Mild                |
| Stomach                          | Forestomach   | Acanthosis                       | Mild                |
|                                  | Glandular     | Fibrosis                         | Minimal             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 126

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Glandular

Pigmentation

Minimal

Note: KERATIN PEARL AND A NEST OF CELLS IN SUBMUCOSA

Note: ACANTHOSIS TGLs = 7-7.1

Thymus

Pigmentation

Minimal

Uterus

Polyp Stromal

Note: POLYP STROMAL TGLs = 4-6

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:28  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

**ANIMAL ID:** 129

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Mammary Gland           |
| Nose                      | Ovary                    | Pancreas                   | Parathyroid Gland       |
| Salivary Glands           | Skin                     | Thymus                     | Thyroid Gland           |
| Trachea                   | Urinary Bladder          | Uterus                     |                         |

**OBSERVATIONS**

|                                    |              |                                  |                      |
|------------------------------------|--------------|----------------------------------|----------------------|
| Heart                              |              | Cardiomyopathy                   | Mild                 |
| Kidney                             |              | Nephropathy                      | Minimal              |
| Liver                              |              | Basophilic Focus                 |                      |
|                                    |              | Inflammation                     | Granulomatous, Mild  |
|                                    |              | Pigmentation                     | Mild                 |
| Lymph Node                         | Mesenteric   | Infiltration Cellular            | Histiocyte, Moderate |
|                                    | Mandibular   | Pigmentation                     | Minimal              |
|                                    | Mesenteric   | Pigmentation                     | Moderate             |
| Note: PIGMENT                      | TGLs = 2-8   |                                  |                      |
| Pituitary Gland                    |              |                                  |                      |
| Note: CYST                         | TGLs = 1-8   |                                  |                      |
| Spleen                             |              |                                  |                      |
|                                    |              | Hematopoietic Cell Proliferation | Mild                 |
|                                    |              | Infiltration Cellular            | Histiocyte, Minimal  |
|                                    |              | Pigmentation                     | Mild                 |
|                                    |              | Pigmentation                     | Hemosiderin, Mild    |
| Stomach                            | Forestomach  | Acanthosis                       | Mild                 |
|                                    | Glandular    | Fibrosis                         | Mild                 |
|                                    | Glandular    | Mineralization                   | Minimal              |
|                                    | Glandular    | Pigmentation                     | Minimal              |
| Note: MINERALIZATION IN MUSCULARIS |              |                                  |                      |
| Note: ACANTHOSIS                   | TGLs = 3-7.1 |                                  |                      |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 130

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Ovary                     | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**OBSERVATIONS**

|  |               |                                  |                     |
|--|---------------|----------------------------------|---------------------|
| Kidney   | Papilla       | Mineralization                   | Minimal             |
|  |               | Nephropathy                      | Minimal             |
| Liver  |               | Basophilic Focus                 |                     |
|  |               | Inflammation                     | Granulomatous, Mild |
|  |               | Pigmentation                     | Minimal             |
| Note: SUGGESTION OF NEOPLASTIC NODULE IN THE SECTION CIRCLED |               |                                  |                     |
| Note: INFLAMMATION TGLs = 3-3                                |               |                                  |                     |
| Lung   |               | Infiltration Cellular            | Histiocyte, Mild    |
|  |               | Pigmentation                     | Minimal             |
| [ Infiltration Cellular TGLS = 2-1+2 ]                       |               |                                  |                     |
| Lymph Node   | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal |
|  | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|  | Mandibular    | Pigmentation                     | Minimal             |
|  | Mediastinal   | Pigmentation                     | Minimal             |
|  | Mesenteric    | Pigmentation                     | Mild                |
| Pancreas   | Acinus        | Hyperplasia                      | Mild                |
| Pituitary Gland  | Pars Distalis | Adenoma                          |                     |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild                |
|  |               | Infiltration Cellular            | Histiocyte, Mild    |
|  |               | Pigmentation                     | Hemosiderin, Mild   |
|  |               | Pigmentation                     | Mild                |
| Stomach  | Forestomach   | Acanthosis                       | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 130

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                |         |
|--|----------------|---------|
| Glandular  | Fibrosis       | Mild    |
| Forestomach  | Hyperkeratosis | Mild    |
| Glandular  | Hyperplasia    | Minimal |
| Glandular  | Metaplasia     | Mild    |
| Glandular  | Pigmentation   | Minimal |
| Note: SUGGESTION OF A PAPILLOMA IN PAS STAINED SECTION |                |         |
| Thymus   | Pigmentation   | Minimal |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:28  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 132      TRT#: 5      SEX: Female      DAY ON TEST: 715  
 DOSE: 0.025 G/KG 79 LF      DISP: Moribund      HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Bone Marrow             |
| Brain                    | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Nose                    | Ovary                     | Pancreas                |
| Parathyroid Gland        | Salivary Glands         | Skin                      | Trachea                 |
| Urinary Bladder          | Uterus                  |                           |                         |

**OBSERVATIONS**

|  |               |                       |                        |
|--|---------------|-----------------------|------------------------|
| Clitoral Gland                         |               | Adenoma               |                        |
|  |               | Necrosis              | Moderate               |
| Note: NECROSIS      TGLs = 3-10        |               |                       |                        |
| Note: ADENOMA      TGLs = 2-10         |               |                       |                        |
| Heart                                  |               | Cardiomyopathy        | Mild                   |
|  |               | Leukemia Mononuclear  |                        |
| Intestine Small                        | Duodenum      | Pigmentation          | Minimal                |
| Kidney                                 |               | Leukemia Mononuclear  |                        |
| Note: LEUKEMIA MONUC      TGLs = 8-4   |               |                       |                        |
| Liver                                  |               | Fatty Change          | Diffuse, Mild          |
|  |               | Leukemia Mononuclear  |                        |
| Note: LEUKEMIA MONUC      TGLs = 9-3   |               |                       |                        |
| Lung                                   |               | Infiltration Cellular | Histiocyte, Minimal    |
|  |               | Inflammation          | Granulomatous, Minimal |
|  |               | Leukemia Mononuclear  |                        |
|  |               | Pigmentation          | Minimal                |
| Note: LEUKEMIA MONUC      TGLs = 5-1+2 |               |                       |                        |
| Lymph Node                             | Mediastinal   | Infiltration Cellular | Histiocyte, Minimal    |
|  | Mesenteric    | Infiltration Cellular | Histiocyte, Mild       |
|  | Mandibular    | Pigmentation          | Minimal                |
|  | Mediastinal   | Pigmentation          | Minimal                |
|  | Mesenteric    | Pigmentation          | Mild                   |
| Pituitary Gland                        | Pars Distalis | Hyperplasia           | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 132

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 715

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                      |              |  |          |
|----------------------|--------------|--|----------|
| Spleen               |              | Hematopoietic Cell Proliferation<br>Leukemia Mononuclear | Moderate |
| Note: HEMA CELL PROL | TGLs = 7-3.1 |  |          |
| Note: LEUKEMIA MONUC | TGLs = 6-3.1 |  |          |
| Stomach              | Forestomach  | Acanthosis   | Mild     |
|                      | Glandular    | Erosion  | Minimal  |
|                      | Glandular    | Fibrosis   | Minimal  |
|                      | Forestomach  | Hyperkeratosis   | Mild     |
|                      | Glandular    | Hyperplasia  | Minimal  |
|                      | Glandular    | Metaplasia   | Minimal  |
| Thymus               |              | Pigmentation   | Minimal  |
| Thyroid Gland        | C Cell       | Adenoma  |          |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 134

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                           |                         |
|-------------------------|--------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                      | Bone Marrow             |
| Brain                   | Clitoral Gland           | Esophagus                 | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Ovary                   | Pancreas                 | Parathyroid Gland         | Salivary Glands         |
| Skin                    | Thyroid Gland            | Trachea                   | Urinary Bladder         |

**OBSERVATIONS**

|   |               |                       |                     |
|---|---------------|-----------------------|---------------------|
| Heart                                   |               | Cardiomyopathy        | Mild                |
| Intestine Small                         | Ileum         | Inflammation          | Acute, Moderate     |
|   | Duodenum      | Pigmentation          | Minimal             |
| Note: PERITONITIS                       |               |                       |                     |
| Kidney                                  | Renal Tubule  | Pigmentation          | Minimal             |
| Liver                                   |               | Basophilic Focus      |                     |
|   |               | Inflammation          | Granulomatous, Mild |
|   |               | Pigmentation          | Mild                |
| Note: INFLAMMATION TGLs = 7-3           |               |                       |                     |
| Lung                                    |               | Infiltration Cellular | Histiocyte, Mild    |
|   |               | Pigmentation          | Minimal             |
| Note: INFILTRAT CELL TGLs = 4-1+2       |               |                       |                     |
| Lymph Node                              | Mediastinal   | Infiltration Cellular | Plasma Cell, Mild   |
|   | Mediastinal   | Infiltration Cellular | Histiocyte, Minimal |
|   | Pancreatic    | Infiltration Cellular | Histiocyte, Mild    |
|   | Mandibular    | Pigmentation          | Minimal             |
|   | Mediastinal   | Pigmentation          | Mild                |
|   | Mesenteric    | Pigmentation          | Mild                |
| Note: INFILTRAT CELL TGLs = 2-9,3-2,6-9 |               |                       |                     |
| Mammary Gland                           |               | Fibroadenoma          |                     |
| [ Fibroadenoma TGLS = 1-13 ]            |               |                       |                     |
| Nose                                    |               | Fungus                | Mild                |
|   |               | Inflammation          | Acute, Mild         |
| Pituitary Gland                         | Pars Distalis | Hyperplasia           | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 134

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: HYPERPLASIA TGLs = 8-8  
Spleen

Fibrosis Mild  
Hematopoietic Cell Proliferation Mild  
Pigmentation Mild

Note: FIBROSIS TGLs = 9-3.1  
Stomach

Forestomach  
Glandular  
Glandular  
Glandular  
Glandular

Acanthosis Mild  
Fibrosis Mild  
Hyperplasia Minimal  
Metaplasia Minimal  
Pigmentation Minimal

Note: ACANTHOSIS TGLs = 10-7  
Thymus  
Uterus

Pigmentation Minimal  
Polyp Stromal

Note: POLYP STROMAL TGLs = 5-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 135

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 643

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Bone                    | Bone Marrow               | Brain                    | Clitoral Gland             |
| Esophagus               | Eye                       | Harderian Gland          | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Mammary Gland           | Nose                      | Pancreas                 | Parathyroid Gland          |
| Salivary Glands         | Skin                      | Thyroid Gland            | Trachea                    |
| Urinary Bladder         | Uterus                    |                          |                            |

**OBSERVATIONS**

|                                   |               |                       |                     |
|-----------------------------------|---------------|-----------------------|---------------------|
| Adrenal Gland                     | Cortex        | Leukemia Mononuclear  |                     |
|                                   | Medulla       | Leukemia Mononuclear  |                     |
| Liver                             |               | Fatty Change          | Focal, Minimal      |
|                                   | Bile Duct     | Hyperplasia           | Mild                |
|                                   |               | Leukemia Mononuclear  |                     |
|                                   |               | Pigmentation          | Minimal             |
| [ Fatty Change TGLS = 6-3 ]       |               |                       |                     |
| Lung                              |               | Infiltration Cellular | Histiocyte, Minimal |
|                                   |               | Leukemia Mononuclear  |                     |
|                                   |               | Pigmentation          | Minimal             |
| Note: LEUKEMIA MONUC TGLs = 3-1+2 |               |                       |                     |
| Lymph Node                        | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|                                   | Pancreatic    | Infiltration Cellular | Histiocyte, Mild    |
|                                   | Mandibular    | Pigmentation          | Minimal             |
|                                   | Mesenteric    | Pigmentation          | Mild                |
|                                   | Pancreatic    | Pigmentation          | Mild                |
| Ovary                             |               | Cyst                  |                     |
| Note: CYST TGLs = 4-6             |               |                       |                     |
| Pituitary Gland                   | Pars Distalis | Adenoma               |                     |
|                                   | Pars Distalis | Angiectasis           | Mild                |
| Note: ADENOMA TGLs = 7-8          |               |                       |                     |
| Spleen                            |               | Leukemia Mononuclear  |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 135

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 643

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

[ Leukemia Mononuclear TGLS = 5-3 ]

|         |             |                |             |
|---------|-------------|----------------|-------------|
| Stomach | Forestomach | Acanthosis     | Mild        |
|         | Glandular   | Erosion        | Minimal     |
|         | Glandular   | Fibrosis       | Mild        |
|         | Forestomach | Hyperkeratosis | Mild        |
|         | Glandular   | Hyperplasia    | Mild        |
|         | Glandular   | Inflammation   | Acute, Mild |
|         | Glandular   | Metaplasia     | Minimal     |
| Thymus  |             | Pigmentation   | Minimal     |

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 136

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 661

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Esophagus               | Harderian Gland          | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Thyroid Gland             |
| Trachea                 | Urinary Bladder          | Uterus                  |                           |

**MISSING**

|                |        |
|----------------|--------|
| Clitoral Gland | Thymus |
|----------------|--------|

**OBSERVATIONS**

|                    |                       |                                  |                      |
|--------------------|-----------------------|----------------------------------|----------------------|
| Bone Marrow        |                       | Pigmentation                     | Minimal              |
| Eye                | Lens                  | Cataract                         | Moderate             |
| Note: CATARACT     | TGLs = 4-16           |                                  |                      |
| Intestine Small    | Duodenum              | Pigmentation                     | Minimal              |
| Kidney             | Papilla               | Mineralization                   | Minimal              |
| Liver              |                       | Basophilic Focus                 |                      |
|                    |                       | Inflammation                     | Granulomatous, Mild  |
|                    |                       | Pigmentation                     | Minimal              |
| Lung               |                       | Hemorrhage                       | Minimal              |
|                    |                       | Infiltration Cellular            | Histiocyte, Minimal  |
| Lymph Node         | Mesenteric            | Infiltration Cellular            | Histiocyte, Mild     |
|                    | Mandibular            | Pigmentation                     | Minimal              |
|                    | Mesenteric            | Pigmentation                     | Mild                 |
| Note: PIGMENT      | TGLs = 6-8            |                                  |                      |
| Mammary Gland      |                       | Fibroadenoma                     | Multiple             |
| Note: FIBROADENOMA | TGLs = 1-13,2-14,3-15 |                                  |                      |
| Pituitary Gland    | Pars Distalis         | Angiectasis                      | Mild                 |
| Spleen             |                       | Hematopoietic Cell Proliferation | Minimal              |
|                    |                       | Infiltration Cellular            | Histiocyte, Minimal  |
|                    |                       | Pigmentation                     | Hemosiderin, Minimal |
| Stomach            | Forestomach           | Acanthosis                       | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 136

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 661  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|             |                |         |
|-------------|----------------|---------|
| Glandular   | Fibrosis       | Mild    |
| Forestomach | Hyperkeratosis | Mild    |
| Glandular   | Hyperplasia    | Minimal |
| Glandular   | Metaplasia     | Mild    |

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 138      **TRT#:** 5      **SEX:** Female      **DAY ON TEST:** 350  
**DOSE:** 0.025 G/KG 79 LF      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Bone                     | Bone Marrow                | Brain                   |
| Clitoral Gland            | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Lymph Node - Mesenteric |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Pituitary Gland         |
| Salivary Glands           | Skin                     | Stomach - Forestomach      | Thymus                  |
| Thyroid Gland             | Trachea                  | Urinary Bladder            | Uterus                  |

**OBSERVATIONS**

|  |           |                                  |                |
|--|-----------|----------------------------------|----------------|
| Adrenal Gland                              | Medulla   | Hyperplasia                      | Minimal        |
| Eye  |           | Synechia                         | Mild           |
| Note: SYNECHIA      TGLs = 1-6             |           |                                  |                |
| Kidney                                     | Cortex    | Mineralization                   | Minimal        |
| Liver                                      |           | Basophilic Focus                 |                |
|  |           | Fatty Change                     | Focal, Minimal |
| Note: FATTY CHANGE      TGLs = 6-3         |           |                                  |                |
| Lung                                       |           | Inflammation                     | Acute, Minimal |
| Note: INFLAMMATION      TGLs = 4-1+2       |           |                                  |                |
| Mammary Gland                              |           | Adenocarcinoma                   |                |
| Note: ADENOCARC      TGLs = 2-10,8-13+13.1 |           |                                  |                |
| Nose                                       |           | Inflammation                     | Acute, Mild    |
| Spleen                                     |           | Hematopoietic Cell Proliferation | Moderate       |
| Note: HEMA CELL PROL      TGLs = 5-3       |           |                                  |                |
| Stomach                                    | Glandular | Hyperplasia                      | Minimal        |
|  | Glandular | Metaplasia                       | Minimal        |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 139

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Kidney                     | Mammary Gland           | Nose                      |
| Pancreas                 | Parathyroid Gland          | Salivary Glands         | Skin                      |
| Stomach - Forestomach    | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          | Uterus                     |                         |                           |

**OBSERVATIONS**

|   |               |                                  |                      |
|---|---------------|----------------------------------|----------------------|
| Bone Marrow                                   |               | Pigmentation                     | Minimal              |
| Heart   |               | Cardiomyopathy                   | Mild                 |
| Liver   |               | Basophilic Focus                 |                      |
|   |               | Inflammation                     | Granulomatous, Mild  |
|   |               | Pigmentation                     | Mild                 |
| Lung  |               | Infiltration Cellular            | Histiocyte, Mild     |
| Note: INFILTRAT CELL TGLs = 5-1+2             |               |                                  |                      |
| Lymph Node                                    | Mandibular    | Pigmentation                     | Mild                 |
|   | Mesenteric    | Pigmentation                     | Mild                 |
|   | Pancreatic    | Pigmentation                     | Moderate             |
| Note: PIGMENT TGLs = 6-9,7-8                  |               |                                  |                      |
| Ovary   |               | Cyst                             |                      |
| Note: CYST TGLs = 3-6                         |               |                                  |                      |
| Pituitary Gland                               | Pars Distalis | Hyperplasia                      | Mild                 |
| Spleen  |               | Hematopoietic Cell Proliferation | Minimal              |
|   |               | Hemorrhage                       | Mild                 |
|   |               | Pigmentation                     | Hemosiderin, Minimal |
|   |               | Sarcoma                          |                      |
| Note: [ SARCOMA ] TGLs = 2-3.1                |               |                                  |                      |
| Note: MORE A MALIGNANT LYMPHOMA THAN LEUKEMIA |               |                                  |                      |
| Stomach                                       | Glandular     | Fibrosis                         | Mild                 |
|   | Glandular     | Metaplasia                       | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 139

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Glandular

Pigmentation

Mild

Fat

Proliferation

Minimal

---

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 142      **TRT#:** 5      **SEX:** Female      **DAY ON TEST:** 504  
**DOSE:** 0.025 G/KG 79 LF      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       | Lymph Node - Mandibular |
| Nose                      | Ovary                    | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           | Uterus                   |                            |                         |

**OBSERVATIONS**

|  |               |                                  |                      |
|--|---------------|----------------------------------|----------------------|
| Heart                                  |               | Cardiomyopathy                   | Mild                 |
| Kidney                                 | Renal Tubule  | Pigmentation                     | Mild                 |
| Liver                                  |               | Basophilic Focus                 |                      |
|  |               | Fatty Change                     | Focal, Mild          |
| Note: PIGMENT IN PORTAL RADICLES       |               |                                  |                      |
| Lymph Node                             | Mesenteric    | Infiltration Cellular            | Histiocyte, Moderate |
| Note: INFILTRAT CELL TGLs = 5-8        |               |                                  |                      |
| Mammary Gland                          |               | Fibroadenoma                     |                      |
| [ Fibroadenoma TGLS = 1-10 ]           |               |                                  |                      |
| Mesentery                              | Fat           | Necrosis                         | Marked               |
| [ Necrosis TGLS = 6-13 ]               |               |                                  |                      |
| Pancreas                               | Acinus        | Hyperplasia                      | Mild                 |
| Note: HYPERPLASIA TGLs = 4-9           |               |                                  |                      |
| Pituitary Gland                        | Pars Distalis | Cyst                             |                      |
|  | Pars Nervosa  | Cyst                             |                      |
| Note: GLANDULAR TISSUE IN PARS NERVOSA |               |                                  |                      |
| Spleen                                 |               | Hematopoietic Cell Proliferation | Minimal              |
|  |               | Infiltration Cellular            | Histiocyte, Mild     |
| Stomach                                | Glandular     | Erosion                          | Minimal              |
|  | Glandular     | Hemorrhage                       | Mild                 |
|  | Forestomach   | Hyperkeratosis                   | Mild                 |
|  | Glandular     | Inflammation                     | Acute, Mild          |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 142

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 504  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                  |            |           |              |         |
|------------------|------------|-----------|--------------|---------|
| Note: HEMORRHAGE | TGLs = 7-7 | Glandular | Pigmentation | Minimal |
|------------------|------------|-----------|--------------|---------|

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 144      **TRT#:** 5      **SEX:** Female      **DAY ON TEST:** 645  
**DOSE:** 0.025 G/KG 79 LF      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Thyroid Gland            | Trachea                    | Urinary Bladder         |

**OBSERVATIONS**

|                                      |               |                                  |                     |
|--------------------------------------|---------------|----------------------------------|---------------------|
| Heart                                |               | Cardiomyopathy                   | Mild                |
| Liver                                |               | Basophilic Focus                 |                     |
|                                      |               | Pigmentation                     | Minimal             |
| Lung                                 |               | Infiltration Cellular            | Histiocyte, Minimal |
| Note: INFILTRAT CELL    TGLs = 3-1+2 |               |                                  |                     |
| Lymph Node                           | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal |
|                                      | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                                      | Mandibular    | Pigmentation                     | Minimal             |
|                                      | Mediastinal   | Pigmentation                     | Mild                |
|                                      | Mesenteric    | Pigmentation                     | Mild                |
| Note: PIGMENT          TGLs = 7-8    |               |                                  |                     |
| Mammary Gland                        |               | Fibroadenoma                     |                     |
| [ Fibroadenoma TGLS = 1-13 ]         |               |                                  |                     |
| Mesentery                            | Fat           | Necrosis                         | Mild                |
| Note: NECROSIS          TGLs = 6-3   |               |                                  |                     |
| Pituitary Gland                      | Pars Distalis | Adenoma                          |                     |
|                                      | Pars Distalis | Angiectasis                      | Mild                |
| [ Angiectasis TGLS = 9-8 ]           |               |                                  |                     |
| Spleen                               |               | Hematopoietic Cell Proliferation | Mild                |
|                                      |               | Infiltration Cellular            | Histiocyte, Minimal |
|                                      |               | Pigmentation                     | Mild                |
|                                      |               | Pigmentation                     | Hemosiderin, Mild   |
| Stomach                              | Glandular     | Fibrosis                         | Mild                |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 144

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 645  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                  |              |                |          |
|------------------|--------------|----------------|----------|
|                  | Forestomach  | Hyperkeratosis | Mild     |
|                  | Glandular    | Metaplasia     | Mild     |
|                  | Fat          | Proliferation  | Minimal  |
| Thymus           |              | Pigmentation   | Minimal  |
| Uterus           |              | Hemorrhage     | Moderate |
| Note: HEMORRHAGE | TGLs = 5-6.1 |                |          |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 145

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                          |                           |
|-------------------------|-------------------------|--------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone                     | Bone Marrow               |
| Brain                   | Clitoral Gland          | Esophagus                | Heart                     |
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland           | Nose                     | Ovary                     |
| Pancreas                | Salivary Glands         | Skin                     | Stomach - Forestomach     |
| Thyroid Gland           | Trachea                 | Urinary Bladder          | Uterus                    |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|  |              |                              |                         |
|--|--------------|------------------------------|-------------------------|
| Intestine Small  | Ileum        | Fibrosis                     | Mild                    |
|  | Ileum        | Inflammation                 | Acute, Mild             |
|  | Duodenum     | Pigmentation                 | Minimal                 |
|  | Ileum        | Pigmentation                 | Minimal                 |
| Kidney   | Papilla      | Mineralization               | Minimal                 |
|  |              | Nephropathy                  | Minimal                 |
|  | Renal Tubule | Pigmentation                 | Mild                    |
| Liver  |              | Basophilic Focus             |                         |
|  |              | Inflammation                 | Granulomatous, Moderate |
|  |              | Pigmentation                 | Minimal                 |
| Note: INFLAMMATION TGLs = 5-3                                  |              |                              |                         |
| Lung   |              | Alveolar/Bronchiolar Adenoma |                         |
|  |              | Hemorrhage                   | Minimal                 |
|  |              | Infiltration Cellular        | Histiocyte, Mild        |
|  |              | Inflammation                 | Granulomatous, Minimal  |
|  |              | Pigmentation                 | Minimal                 |
| Note: INFILTRAT CELL TGLs = 2-1+2<br>[ Hemorrhage TGLS = 3-1 ] |              |                              |                         |
| Lymph Node   | Mediastinal  | Infiltration Cellular        | Histiocyte, Minimal     |
|  | Mesenteric   | Infiltration Cellular        | Histiocyte, Mild        |
|  | Mandibular   | Pigmentation                 | Minimal                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 145 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                 |               |                                  |                      |
|-----------------|---------------|----------------------------------|----------------------|
|                 | Mediastinal   | Pigmentation                     | Minimal              |
|                 | Mesenteric    | Pigmentation                     | Mild                 |
| Note: PIGMENT   | TGLs = 4-8    |                                  |                      |
| Pituitary Gland | Pars Distalis | Adenoma                          | Multiple             |
| Spleen          |               | Depletion Lymphoid               | Minimal              |
|                 |               | Hematopoietic Cell Proliferation | Mild                 |
|                 |               | Pigmentation                     | Minimal              |
|                 |               | Pigmentation                     | Hemosiderin, Minimal |
| Stomach         | Glandular     | Fibrosis                         | Mild                 |
|                 | Glandular     | Metaplasia                       | Minimal              |
|                 | Fat           | Proliferation                    | Minimal              |
| Thymus          |               | Pigmentation                     | Minimal              |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 146

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 430

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Clitoral Gland          | Esophagus                 | Harderian Gland          | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     |
| Liver                   | Mammary Gland             | Ovary                    | Pancreas                   |
| Parathyroid Gland       | Pituitary Gland           | Salivary Glands          | Skin                       |
| Stomach - Forestomach   | Thymus                    | Thyroid Gland            | Trachea                    |
| Urinary Bladder         |                           |                          |                            |

**OBSERVATIONS**

|                             |             |                                  |                     |
|-----------------------------|-------------|----------------------------------|---------------------|
| Brain                       |             | Necrosis                         | Moderate            |
| Note: NECROSIS              | TGLs = 6-5  |                                  |                     |
| Eye                         |             | Inflammation                     | Acute, Mild         |
| Note: INFLAMMATION          | TGLs = 2-10 |                                  |                     |
| Lung                        |             | Congestion                       | Mild                |
| [ Congestion TGLS = 3-1+2 ] |             |                                  |                     |
| Lymph Node                  | Mandibular  | Infiltration Cellular            | Histiocyte, Minimal |
|                             | Mesenteric  | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL        | TGLs = 5-8  |                                  |                     |
| Nose                        |             | Inflammation                     | Acute, Minimal      |
| Spleen                      |             | Hematopoietic Cell Proliferation | Mild                |
|                             |             | Infiltration Cellular            | Histiocyte, Mild    |
| Stomach                     | Glandular   | Fibrosis                         | Mild                |
|                             | Glandular   | Hemorrhage                       | Minimal             |
|                             | Glandular   | Hyperplasia                      | Mild                |
|                             | Glandular   | Metaplasia                       | Minimal             |
| Uterus                      | Endometrium | Hyperplasia                      | Mild                |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 147

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 645

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Medulla  | Bone                       | Bone Marrow             | Brain                     |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Nose                       | Ovary                   | Pancreas                  |
| Parathyroid Gland        | Pituitary Gland            | Salivary Glands         | Skin                      |
| Trachea                  | Urinary Bladder            |                         |                           |

**MISSING**

|                |        |
|----------------|--------|
| Clitoral Gland | Thymus |
|----------------|--------|

**OBSERVATIONS**

|   |              |                       |                     |
|---|--------------|-----------------------|---------------------|
| Adrenal Gland                             | Cortex       | Necrosis              | Mild                |
| Eye                                       | Lens         | Cataract              | Mild                |
| Note: CATARACT TGLs = 1-13                |              |                       |                     |
| Harderian Gland                           |              | Pigmentation          | Mild                |
| Note: PIGMENT DIFFERENT FROM PORPHYRIN    |              |                       |                     |
| Kidney                                    | Renal Tubule | Pigmentation          | Minimal             |
| Liver                                     |              | Basophilic Focus      |                     |
|   |              | Fatty Change          | Focal, Minimal      |
|   |              | Necrosis              | Mild                |
|   |              | Pigmentation          | Minimal             |
| [ Basophilic Focus TGLS = 4-3 ]           |              |                       |                     |
| Lung                                      |              | Infiltration Cellular | Histiocyte, Minimal |
| Note: INFILTRAT CELL TGLs = 3-1+2         |              |                       |                     |
| Lymph Node                                | Mediastinal  | Infiltration Cellular | Histiocyte, Mild    |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Mild    |
|   | Mandibular   | Pigmentation          | Minimal             |
|   | Mediastinal  | Pigmentation          | Mild                |
|   | Mesenteric   | Pigmentation          | Mild                |
| Note: PIGMENT TGLs = 6-8                  |              |                       |                     |
| Mammary Gland                             |              | Fibroadenoma          |                     |
| Note: TGL #2 PROBABLY REFERS TO THIS MASS |              |                       |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |   |   |  |
|-----------------------|---|---|--|
| <b>ANIMAL ID:</b> 147 | <b>TRT#:</b> 5<br><b>DOSE:</b> 0.025 G/KG 79 LF | <b>SEX:</b> Female<br><b>DISP:</b> Moribund | <b>DAY ON TEST:</b> 645<br><b>HISTO:</b> |
|-----------------------|---|---|--|

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |  |   |   |
|---------------|--|---|---|
| Spleen        |  | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation<br>Pigmentation | Mild<br>Histiocyte, Mild<br>Hemosiderin, Mild<br>Mild             |
| Stomach       | Forestomach<br>Glandular<br>Forestomach<br>Glandular<br>Glandular<br>Glandular | Acanthosis<br>Fibrosis<br>Hyperkeratosis<br>Hyperplasia<br>Metaplasia<br>Pigmentation     | Mild<br>Mild<br>Moderate<br>Minimal<br>Mild<br>Minimal            |
|               |  |   | Note: MORE LIKE ATROPHIC GASTRITIS<br>Note: ACANTHOSIS TGLs = 7-7 |
| Thyroid Gland | C Cell   | Hyperplasia   | Minimal   |
| Uterus        |  | Polyp Stromal   |   |

Note: POLYP STROMAL TGLs = 5-6

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**PRIMARY CAUSE OF DEATH** -

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**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 148

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Brain                   | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Lymph Node - Mandibular  | Mammary Gland           | Ovary                     |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Stomach - Forestomach     |
| Trachea                 | Urinary Bladder          | Uterus                  |                           |

**OBSERVATIONS**

|                             |               |                            |                     |
|-----------------------------|---------------|----------------------------|---------------------|
| Clitoral Gland              |               | Adenoma                    |                     |
| Note: ADENOMA               | TGLs = 1-10.1 |                            |                     |
| Intestine Small             | Duodenum      | Pigmentation               | Minimal             |
| Kidney                      | Renal Tubule  | Nephropathy                | Minimal             |
|                             |               | Pigmentation               | Mild                |
| Liver                       |               | Basophilic Focus           |                     |
|                             |               | Hepatodiaphragmatic Nodule |                     |
|                             |               | Necrosis                   | Minimal             |
|                             |               | Pigmentation               | Minimal             |
| Note: ANOM HEPAT LOB        | TGLs = 3-3    |                            |                     |
| Lung                        |               | Infiltration Cellular      | Histiocyte, Minimal |
|                             |               | Pigmentation               | Minimal             |
| Lymph Node                  | Mediastinal   | Infiltration Cellular      | Histiocyte, Mild    |
|                             | Mesenteric    | Infiltration Cellular      | Histiocyte, Mild    |
|                             | Mediastinal   | Pigmentation               | Mild                |
|                             | Mesenteric    | Pigmentation               | Mild                |
| Mesentery                   | Fat           | Necrosis                   | Mild                |
| Note: NECROSIS              | TGLs = 2-6    |                            |                     |
| Nose                        |               | Inflammation               | Acute, Minimal      |
| Note: BLOOD IN NASAL CAVITY |               |                            |                     |
| Pancreas                    | Acinus        | Hyperplasia                | Mild                |
| Pituitary Gland             | Pars Distalis | Angiectasis                | Mild                |
|                             | Pars Distalis | Hyperplasia                | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 148

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: [ HYPERPLASIA ] TGLs = 4-8

|                        |           |                                  |          |
|------------------------|-----------|----------------------------------|----------|
| Spleen                 |           | Hematopoietic Cell Proliferation | Moderate |
|                        |           | Leukemia Mononuclear             |          |
|                        |           | Pigmentation                     | Minimal  |
| Stomach                | Glandular | Fibrosis                         | Minimal  |
|                        | Glandular | Metaplasia                       | Minimal  |
| Thymus                 |           | Pigmentation                     | Minimal  |
| Thyroid Gland          | C Cell    | Hyperplasia                      | Minimal  |
| PRIMARY CAUSE OF DEATH | -         |                                  |          |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 149

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 574

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lymph Node - Mandibular |
| Nose                      | Ovary                    | Pancreas                   | Salivary Glands         |
| Skin                      | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           | Uterus                   |                            |                         |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|                                  |              |                                  |                      |
|----------------------------------|--------------|----------------------------------|----------------------|
| Heart                            |              | Cardiomyopathy                   | Mild                 |
| Liver                            |              | Basophilic Focus                 |                      |
| Note: PIGMENT IN PORTAL RADICLES |              |                                  |                      |
| Lung                             |              | Edema                            | Mild                 |
|                                  |              | Infiltration Cellular            | Histiocyte, Minimal  |
|                                  |              | Inflammation                     | Acute, Minimal       |
| Note: EDEMA                      | TGLs = 2-1+2 |                                  |                      |
| Lymph Node                       |              | Infiltration Cellular            | Histiocyte, Moderate |
|                                  |              | Pigmentation                     | Mild                 |
| Mammary Gland                    |              | Adenoma                          |                      |
| Note: ADENOMA                    | TGLs = 3-14  |                                  |                      |
| Mesentery                        |              | Fat                              | Chronic Active, Mild |
|                                  |              | Fat                              | Mild                 |
| Note: NECROSIS                   | TGLs = 4-13  |                                  |                      |
| Pituitary Gland                  |              | Pars Distalis                    |                      |
|                                  |              | Pars Distalis                    |                      |
| Note: ADENOMA                    | TGLs = 5-8   |                                  |                      |
| Spleen                           |              | Hematopoietic Cell Proliferation | Minimal              |
|                                  |              | Infiltration Cellular            | Histiocyte, Mild     |
| Stomach                          | Glandular    | Erosion                          | Minimal              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 149

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Dead

**DAY ON TEST:** 574  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|             |                |                |
|-------------|----------------|----------------|
| Glandular   | Fibrosis       | Mild           |
| Glandular   | Hemorrhage     | Minimal        |
| Forestomach | Hyperkeratosis | Mild           |
| Glandular   | Hyperplasia    | Minimal        |
| Glandular   | Inflammation   | Acute, Minimal |
| Glandular   | Metaplasia     | Mild           |
| Glandular   | Pigmentation   | Minimal        |
| Fat         | Proliferation  | Minimal        |

Note: AREAS OF INTESTINAL METAPLASIA

Note: HYPERPLASIA TGLs = 6-7

**PRIMARY CAUSE OF DEATH**

-

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 150

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Bone                      | Brain                   | Clitoral Gland           | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Nose                    | Pancreas                 | Parathyroid Gland       |
| Salivary Glands           | Skin                    | Trachea                  | Urinary Bladder         |
| Uterus                    |                         |                          |                         |

**OBSERVATIONS**

|  |              |                       |                     |
|--|--------------|-----------------------|---------------------|
| Adrenal Gland                                      | Cortex       | Leukemia Mononuclear  |                     |
|  | Medulla      | Leukemia Mononuclear  |                     |
| Bone Marrow  |              | Leukemia Mononuclear  |                     |
| Heart  |              | Cardiomyopathy        | Mild                |
| Intestine Small                                    | Duodenum     | Pigmentation          | Minimal             |
| Islets, Pancreatic                                 |              | Adenoma               | Multiple            |
| Kidney   |              | Leukemia Mononuclear  |                     |
|  | Renal Tubule | Pigmentation          | Minimal             |
| Liver  |              | Basophilic Focus      |                     |
|  |              | Fatty Change          | Focal, Mild         |
|  |              | Hyperplasia           | Mild                |
|  |              | Leukemia Mononuclear  |                     |
|  |              | Pigmentation          | Minimal             |
| Note: LEUKEMIA MONUC TGLs = 11-3                   |              |                       |                     |
| Lung   |              | Infiltration Cellular | Histiocyte, Minimal |
|  |              | Leukemia Mononuclear  |                     |
| [ Infiltration Cellular TGLS = 5-1+2,6-1+2,7-1+2 ] |              |                       |                     |
| Lymph Node   | Axillary     | Leukemia Mononuclear  |                     |
|  | Mandibular   | Leukemia Mononuclear  |                     |
|  | Mediastinal  | Leukemia Mononuclear  |                     |
|  | Mesenteric   | Leukemia Mononuclear  |                     |
|  | Pancreatic   | Leukemia Mononuclear  |                     |
| Note: LEUKEMIA MONUC TGLs = 3-9,8-2,10-9,13-8      |              |                       |                     |
| Mammary Gland                                      |              | Fibroadenoma          | Multiple            |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 150 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

|                       |  |                      |         |
|-----------------------|--|----------------------|---------|
| Note: FIBROADENOMA    | TGLs = 1-13,2-14,4-15                        | Galactocele          |         |
| Ovary                 |  | Cyst                 |         |
|                       |  | Leukemia Mononuclear |         |
| Note: CYST            | TGLs = 12-6                                  |                      |         |
| Pituitary Gland       | Pars Distalis                                | Hyperplasia          | Mild    |
|                       |  | Leukemia Mononuclear |         |
| Note: [ HYPERPLASIA ] | TGLs = 15-8                                  |                      |         |
| Spleen                |  | Leukemia Mononuclear |         |
|                       | [ Leukemia Mononuclear TGLS = 9-3.1,14-3.1 ] |                      |         |
| Stomach               | Forestomach                                  | Acanthosis           | Mild    |
|                       | Glandular                                    | Fibrosis             | Mild    |
|                       | Forestomach                                  | Hyperkeratosis       | Mild    |
|                       | Glandular                                    | Hyperplasia          | Minimal |
|                       | Glandular                                    | Metaplasia           | Minimal |
|                       | Fat  | Proliferation        | Minimal |
| Thymus                |  | Leukemia Mononuclear |         |
| Thyroid Gland         | C Cell                                       | Hyperplasia          | Minimal |

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**PRIMARY CAUSE OF DEATH** -

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Animal Note: MORE LIKE LYMPHOCYTIC THAN MONONUCLEAR LEUKEMIA

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 151

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 688

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Brain                    |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Kidney                     | Nose                    | Ovary                     | Pancreas                 |
| Parathyroid Gland          | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Trachea                    | Urinary Bladder         | Uterus                    |                          |

**MISSING**

Clitoral Gland

**OBSERVATIONS**

|   |             |                            |                     |
|---|-------------|----------------------------|---------------------|
| Bone Marrow                                 |             | Pigmentation               | Minimal             |
| Eye   | Lens        | Cataract                   | Mild                |
| Note: MINERALIZATION OF SCLERA              |             |                            |                     |
| Note: CATARACT TGLs = 7-13                  |             |                            |                     |
| Heart                                       |             | Leukemia Mononuclear       |                     |
| Liver                                       |             | Basophilic Focus           |                     |
|   |             | Hepatodiaphragmatic Nodule |                     |
|   |             | Leukemia Mononuclear       |                     |
|   |             | Pigmentation               | Minimal             |
| [ Basophilic Focus TGLS = 4-3+3.1 ]         |             |                            |                     |
| [ Hepatodiaphragmatic Nodule TGLS = 5-3.1 ] |             |                            |                     |
| Lung  |             | Leukemia Mononuclear       |                     |
| Lymph Node                                  | Mediastinal | Infiltration Cellular      | Histiocyte, Minimal |
|   | Mesenteric  | Infiltration Cellular      | Histiocyte, Mild    |
|   | Mandibular  | Pigmentation               | Mild                |
|   | Mediastinal | Pigmentation               | Mild                |
|   | Mesenteric  | Pigmentation               | Mild                |
| Note: PIGMENT TGLs = 8-8                    |             |                            |                     |
| Mammary Gland                               |             | Fibroadenoma               |                     |
|   |             | Galactocele                |                     |
| Note: FIBROADENOMA TGLs = 1-14+14.1         |             |                            |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                       |                         |
|-----------------------|-------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 151 | <b>TRT#:</b> 5                | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 688 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |               |                      |          |
|-------------------------------------|---------------|----------------------|----------|
| Pituitary Gland                     | Pars Distalis | Hyperplasia          | Moderate |
| Spleen                              |               | Leukemia Mononuclear |          |
| [ Leukemia Mononuclear TGLS = 3-3 ] |               |                      |          |
| Stomach                             | Glandular     | Mineralization       | Mild     |
| Note: MINERALIZATION IN MUSCULARIS  |               |                      |          |
| Thymus                              |               | Pigmentation         | Minimal  |
| Thyroid Gland                       | C Cell        | Adenoma              |          |
| Note: ADENOMA TGLs = 2-8            |               |                      |          |

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|                        |   |
|------------------------|---|
| PRIMARY CAUSE OF DEATH | - |
|------------------------|---|

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 152

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Bone Marrow             |
| Brain                    | Clitoral Gland          | Esophagus                 | Eye                     |
| Harderian Gland          | Heart                   | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Nose                     | Ovary                   | Pancreas                  | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Stomach - Forestomach     | Stomach - Glandular     |
| Thyroid Gland            | Trachea                 | Urinary Bladder           | Uterus                  |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                                   |               |                       |                     |
|-----------------------------------|---------------|-----------------------|---------------------|
| Intestine Small                   | Duodenum      | Pigmentation          | Minimal             |
| Kidney                            | Renal Tubule  | Pigmentation          | Minimal             |
| Liver                             |               | Basophilic Focus      |                     |
|                                   |               | Inflammation          | Granulomatous, Mild |
|                                   |               | Neoplastic Nodule     |                     |
|                                   |               | Pigmentation          | Minimal             |
| Note: NEOPLASTIC NOD TGLs = 3-3.1 |               |                       |                     |
| Lung                              |               | Infiltration Cellular | Histiocyte, Mild    |
|                                   |               | Pigmentation          | Minimal             |
| Lymph Node                        | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|                                   | Mandibular    | Pigmentation          | Minimal             |
|                                   | Mesenteric    | Pigmentation          | Mild                |
| Note: PIGMENT TGLs = 5-8          |               |                       |                     |
| Pituitary Gland                   | Pars Distalis | Hyperplasia           | Mild                |
| Note: HYPERPLASIA TGLs = 4-8      |               |                       |                     |
| Spleen                            |               | Infiltration Cellular | Histiocyte, Mild    |
|                                   |               | Pigmentation          | Hemosiderin, Mild   |
|                                   |               | Pigmentation          | Mild                |
| Thymus                            |               | Pigmentation          | Minimal             |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 152

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 153

TRT#: 5

SEX: Female

DAY ON TEST: 743

DOSE: 0.025 G/KG 79 LF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Ovary                   | Pancreas                  | Parathyroid Gland        |
| Salivary Glands            | Skin                    | Stomach - Forestomach     | Trachea                  |
| Urinary Bladder            | Uterus                  |                           |                          |

OBSERVATIONS

|  |                          |  |                                |
|--|--------------------------|--|--------------------------------|
| Adrenal Gland<br>Note: PHEOCHROM BGN TGLs = 5-8                                | Bilateral, Medulla       | Pheochromocytoma Benign  |                                |
| Clitoral Gland<br>Note: CARCINOMA TGLs = 3-15<br>Note: SQUAMOUS CELL CARCINOMA |                          | Carcinoma  |                                |
| Heart  |                          | Cardiomyopathy   | Mild                           |
| Kidney   |                          | Nephropathy  | Minimal                        |
|  | Renal Tubule             | Pigmentation   | Minimal                        |
| Liver<br><br>Note: ANOM HEPAT LOB TGLs = 7-3.1                                 |                          | Basophilic Focus<br>Hepatodiaphragmatic Nodule<br>Pigmentation | Minimal                        |
| Lung   |                          | Infiltration Cellular<br>Pigmentation                          | Histiocyte, Minimal<br>Minimal |
| Lymph Node<br><br>Note: PIGMENT TGLs = 4-8                                     | Mesenteric<br>Mesenteric | Infiltration Cellular<br>Pigmentation                          | Histiocyte, Mild<br>Mild       |
| Mammary Gland<br>Note: FIBROADENOMA TGLs = 1-13,2-14                           |                          | Fibroadenoma   | Multiple                       |
| Nose   |                          | Inflammation   | Acute, Mild                    |
| Pituitary Gland<br>Note: HYPERPLASIA TGLs = 8-8                                | Pars Distalis            | Hyperplasia  | Mild                           |
| Spleen   |                          | Hematopoietic Cell Proliferation                               | Moderate                       |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 153

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |           |               |         |
|------------------------|-----------|---------------|---------|
| Stomach                | Glandular | Fibrosis      | Mild    |
|                        | Glandular | Metaplasia    | Minimal |
|                        | Fat       | Proliferation | Minimal |
| Thymus                 |           | Pigmentation  | Minimal |
| Thyroid Gland          | C Cell    | Adenoma       |         |
|                        | C Cell    | Hyperplasia   | Mild    |
| PRIMARY CAUSE OF DEATH | -         |               |         |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 154

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                    | Brain                    |
| Clitoral Gland          | Esophagus                 | Eye                     | Harderian Gland          |
| Heart                   | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Nose                    | Ovary                     | Pancreas                | Parathyroid Gland        |
| Salivary Glands         | Skin                      | Trachea                 | Urinary Bladder          |
| Uterus                  |                           |                         |                          |

**OBSERVATIONS**

|                                   |               |                                  |                        |
|-----------------------------------|---------------|----------------------------------|------------------------|
| Bone Marrow                       |               | Pigmentation                     | Minimal                |
| Intestine Small                   | Duodenum      | Pigmentation                     | Minimal                |
| Kidney                            |               | Nephropathy                      | Minimal                |
| Liver                             |               | Basophilic Focus                 |                        |
|                                   |               | Inflammation                     | Granulomatous, Minimal |
|                                   |               | Pigmentation                     | Mild                   |
| Lung                              |               | Infiltration Cellular            | Histiocyte, Minimal    |
|                                   |               | Pigmentation                     | Minimal                |
| Note: INFILTRAT CELL TGLs = 2-1+2 |               |                                  |                        |
| Lymph Node                        | Mandibular    | Pigmentation                     | Minimal                |
|                                   | Mesenteric    | Pigmentation                     | Mild                   |
| Note: PIGMENT TGLs = 4-8          |               |                                  |                        |
| Pituitary Gland                   | Pars Distalis | Hyperplasia                      | Mild                   |
| Spleen                            |               | Hematopoietic Cell Proliferation | Mild                   |
|                                   |               | Infiltration Cellular            | Histiocyte, Minimal    |
|                                   |               | Pigmentation                     | Hemosiderin, Mild      |
|                                   |               | Pigmentation                     | Mild                   |
| Stomach                           | Forestomach   | Acanthosis                       | Moderate               |
|                                   | Glandular     | Erosion                          | Mild                   |
|                                   | Glandular     | Fibrosis                         | Mild                   |
|                                   | Forestomach   | Hyperkeratosis                   | Moderate               |
|                                   | Glandular     | Hyperplasia                      | Moderate               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                               |                                 |                         |
|-----------------------|-------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 154 | <b>TRT#:</b> 5                | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 744 |
|                       | <b>DOSE:</b> 0.025 G/KG 79 LF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                        |              |           |              |         |
|------------------------|--------------|-----------|--------------|---------|
| Note: ACANTHOSIS       | TGLs = 5-7   | Glandular | Metaplasia   | Minimal |
| Note: HYPERPLASIA      | TGLs = 6-7.1 |           |              |         |
| Thymus                 |              |           | Pigmentation | Minimal |
| Thyroid Gland          |              | C Cell    | Adenoma      |         |
|                        |              | C Cell    | Hyperplasia  | Mild    |
| Note: HYPERPLASIA      | TGLs = 3-8   |           |              |         |
| PRIMARY CAUSE OF DEATH |              | -         |              |         |

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 155

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Brain                   | Clitoral Gland            |
| Esophagus                | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Ovary                     |
| Pancreas                 | Parathyroid Gland          | Pituitary Gland         | Salivary Glands           |
| Skin                     | Thyroid Gland              | Trachea                 | Urinary Bladder           |
| Uterus                   |                            |                         |                           |

**MISSING**

Thymus

**OBSERVATIONS**

|   |              |                                  |                        |
|---|--------------|----------------------------------|------------------------|
| Adrenal Gland                                 | Medulla      | Pheochromocytoma Benign          |                        |
| Bone Marrow                                   |              | Pigmentation                     | Minimal                |
| Kidney  | Papilla      | Mineralization                   | Minimal                |
|   |              | Nephropathy                      | Mild                   |
|   | Renal Tubule | Pigmentation                     | Minimal                |
| Liver   |              | Basophilic Focus                 |                        |
|   |              | Clear Cell Focus                 |                        |
|   |              | Inflammation                     | Granulomatous, Minimal |
|   |              | Pigmentation                     | Minimal                |
| Note: [ BASOPH FOCUS ] TGLs = 2,3-3           |              |                                  |                        |
| Lung  |              | Infiltration Cellular            | Histiocyte, Mild       |
| [ Infiltration Cellular TGLS = 1-1 ]          |              |                                  |                        |
| Lymph Node                                    | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild       |
|   | Mandibular   | Pigmentation                     | Minimal                |
|   | Mesenteric   | Pigmentation                     | Mild                   |
| Ovary   |              |                                  |                        |
| Note: IN THE SECTION CIRCLED                  |              |                                  |                        |
| Note: SUGGESTIVE OF SERTOLI CELL TUMOR IN THE |              |                                  |                        |
| Spleen  |              | Hematopoietic Cell Proliferation | Mild                   |
|   |              | Infiltration Cellular            | Histiocyte, Minimal    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 155

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 743  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|         |             |                |                   |
|---------|-------------|----------------|-------------------|
| Stomach | Forestomach | Pigmentation   | Hemosiderin, Mild |
|         | Forestomach | Pigmentation   | Mild              |
|         | Forestomach | Acanthosis     | Mild              |
|         | Glandular   | Hyperkeratosis | Mild              |
|         |             | Metaplasia     | Minimal           |

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 156

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Bone Marrow               | Brain                    |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Mammary Gland              | Nose                    | Ovary                     | Pancreas                 |
| Parathyroid Gland          | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Stomach - Glandular        | Trachea                 | Urinary Bladder           | Uterus                   |

**OBSERVATIONS**

|                             |                  |                                  |                      |
|-----------------------------|------------------|----------------------------------|----------------------|
| Adrenal Gland               | Medulla          | Hyperplasia                      | Minimal              |
| Clitoral Gland              |                  | Adenoma                          |                      |
| Note: ADENOMA               | TGLs = 1-10      |                                  |                      |
| Heart                       |                  | Cardiomyopathy                   | Mild                 |
| Kidney                      | Papilla          | Mineralization                   | Minimal              |
|                             | Renal Tubule     | Pigmentation                     | Minimal              |
| Liver                       |                  | Basophilic Focus                 |                      |
|                             |                  | Inflammation                     | Granulomatous, Mild  |
|                             |                  | Pigmentation                     | Minimal              |
| Note: INFLAMMATION          | TGLs = 6-3,7-3   |                                  |                      |
| Lung                        |                  | Hemorrhage                       | Minimal              |
|                             |                  | Infiltration Cellular            | Histiocyte, Mild     |
|                             |                  | Pigmentation                     | Minimal              |
| [ Hemorrhage TGLS = 5-1+2 ] |                  |                                  |                      |
| Lymph Node                  | Mesenteric       | Infiltration Cellular            | Histiocyte, Mild     |
|                             | Mandibular       | Pigmentation                     | Mild                 |
|                             | Mesenteric       | Pigmentation                     | Mild                 |
| Note: PIGMENT               | TGLs = 8-8       |                                  |                      |
| Mesentery                   | Fat              | Inflammation                     | Chronic Active, Mild |
| Note: INFLAMMATION          | TGLs = 2-13,3-13 |                                  |                      |
| Pituitary Gland             | Pars Distalis    | Adenoma                          |                      |
| Spleen                      |                  | Hematopoietic Cell Proliferation | Mild                 |
|                             |                  | Infiltration Cellular            | Histiocyte, Mild     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 156

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |        |              |                   |
|---------------|--------|--------------|-------------------|
|               |        | Pigmentation | Mild              |
|               |        | Pigmentation | Hemosiderin, Mild |
| Thymus        |        | Pigmentation | Minimal           |
| Thyroid Gland | C Cell | Hyperplasia  | Minimal           |

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 157

TRT#: 5

SEX: Female

DAY ON TEST: 639

DOSE: 0.025 G/KG 79 LF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Intestine Small - Jejunum  
Pancreas  
Thymus

Adrenal Gland - Medulla  
Esophagus  
Intestine Large - Rectum  
Islets, Pancreatic  
Pituitary Gland  
Thyroid Gland

Bone  
Heart  
Intestine Small - Duodenum  
Nose  
Salivary Glands  
Trachea

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Ileum  
Ovary  
Skin  
Urinary Bladder

MISSING

Clitoral Gland

Parathyroid Gland

OBSERVATIONS

Kidney  
Liver  
Note: PIGMENT IN PORTAL RADICLES  
Lung

Renal Tubule

Pigmentation  
Basophilic Focus

Minimal

Atelectasis  
Edema  
Infiltration Cellular  
Pigmentation

Mild  
Mild  
Histiocyte, Mild  
Mild

Note: PIGMENT TGLs = 9-1+1.1+2  
Note: LACY MUCINOUS MATERIAL IN MANY BRONCHIOLES AND  
Note: (? CHEMICAL) WALLED BY HISTIOCYTES AND FIBRO-  
Note: BLASTS.  
Note: ATELECTASIS TGLs = 10-1+1.1+2  
Note: THE BRONCHIAL EPITHELIUM. CLUMPS OF PIGMENT  
Note: INFILTRAT CELL TGLs = 4-1+1.1+2  
Note: ALSO IN SOME ALVEOLI. TALL CILIATED CELLS LINE  
Note: EDEMA TGLs = 8-1+1.1+2

Lymph Node

Mandibular  
Mesenteric

Infiltration Cellular  
Infiltration Cellular

Histiocyte, Minimal  
Histiocyte, Moderate

Note: INFILTRAT CELL TGLs = 6-8

Mammary Gland

[ Fibroadenoma TGLS = 2-13 ]

Fibroadenoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 157

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 639

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |   |   |                             |
|--|---|---|-----------------------------|
| Mesentery<br>[ Necrosis TGLS = 5-14 ]  | Fat                                     | Necrosis  | Marked                      |
| Spleen                                 |   | Hematopoietic Cell Proliferation<br>Infiltration Cellular | Mild<br>Histiocyte, Minimal |
| Stomach                                | Forestomach<br>Forestomach<br>Glandular | Acanthosis<br>Hyperkeratosis<br>Metaplasia                | Moderate<br>Mild<br>Minimal |
| Uterus<br>[ Polyp Stromal TGLS = 3-6 ] |   | Polyp Stromal   |                             |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 158

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Ovary                      | Pancreas                |
| Parathyroid Gland         | Salivary Glands          | Skin                       | Stomach - Forestomach   |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |
| Uterus                    |                          |                            |                         |

**OBSERVATIONS**

|                    |                  |                                  |                     |
|--------------------|------------------|----------------------------------|---------------------|
| Heart              |                  | Cardiomyopathy                   | Mild                |
| Kidney             |                  | Nephropathy                      | Mild                |
|                    | Renal Tubule     | Pigmentation                     | Minimal             |
| Liver              |                  | Basophilic Focus                 |                     |
|                    |                  | Inflammation                     | Granulomatous, Mild |
|                    |                  | Pigmentation                     | Minimal             |
| Lung               |                  | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node         | Mediastinal      | Infiltration Cellular            | Histiocyte, Minimal |
|                    | Mesenteric       | Infiltration Cellular            | Histiocyte, Mild    |
|                    | Pancreatic       | Infiltration Cellular            | Histiocyte, Mild    |
|                    | Mandibular       | Pigmentation                     | Minimal             |
|                    | Mediastinal      | Pigmentation                     | Minimal             |
|                    | Mesenteric       | Pigmentation                     | Mild                |
|                    | Pancreatic       | Pigmentation                     | Moderate            |
| Mammary Gland      |                  | Fibroadenoma                     | Multiple            |
|                    |                  | Galactocele                      |                     |
| Note: FIBROADENOMA | TGLs = 2-13,3-14 |                                  |                     |
| Nose               |                  | Inflammation                     | Acute, Minimal      |
| Pituitary Gland    | Pars Distalis    | Adenoma                          |                     |
| Note: ADENOMA      | TGLs = 4-8       |                                  |                     |
| Spleen             |                  | Hematopoietic Cell Proliferation | Mild                |
|                    |                  | Infiltration Cellular            | Histiocyte, Mild    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 158

**TRT#:** 5  
**DOSE:** 0.025 G/KG 79 LF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 749  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

| Organ   | Accountable Site | Status        |
|---------|------------------|---------------|
| Stomach | Glandular        | Pigmentation  |
|         | Glandular        | Pigmentation  |
|         | Glandular        | Fibrosis      |
|         | Glandular        | Metaplasia    |
|         | Fat              | Pigmentation  |
|         |                  | Proliferation |

Hemosiderin, Mild  
Mild  
Mild  
Minimal  
Mild  
Minimal

PRIMARY CAUSE OF DEATH

-

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 160

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Bone Marrow             |
| Brain                    | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Ovary                   | Pancreas                  | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Thyroid Gland             | Trachea                 |
| Urinary Bladder          | Uterus                  |                           |                         |

**OBSERVATIONS**

|                      |             |                       |                      |
|----------------------|-------------|-----------------------|----------------------|
| Clitoral Gland       |             | Adenoma               |                      |
| Note: ADENOMA        | TGLs = 1-10 |                       |                      |
| Heart                |             | Cardiomyopathy        | Mild                 |
| Intestine Small      | Duodenum    | Pigmentation          | Minimal              |
| Kidney               | Cortex      | Mineralization        | Minimal              |
| Liver                |             | Basophilic Focus      |                      |
|                      |             | Leukemia Mononuclear  |                      |
|                      |             | Necrosis              | Minimal              |
|                      |             | Pigmentation          | Minimal              |
| Note: LEUKEMIA MONUC | TGLs = 7-3  |                       |                      |
| Note: BASOPH FOCUS   | TGLs = 8-3  |                       |                      |
| Lung                 |             | Edema                 | Moderate             |
|                      |             | Infiltration Cellular | Histiocyte, Moderate |
|                      |             | Leukemia Mononuclear  |                      |
|                      |             | Pigmentation          | Minimal              |
| Note: INFILTRAT CELL | TGLs = 3-4  |                       |                      |
| Note: LEUKEMIA MONUC | TGLs = 2-4  |                       |                      |
| Note: EDEMA          | TGLs = 4-4  |                       |                      |
| Lymph Node           | Mesenteric  | Infiltration Cellular | Histiocyte, Mild     |
|                      | Mandibular  | Pigmentation          | Mild                 |
|                      | Mediastinal | Pigmentation          | Minimal              |
|                      | Mesenteric  | Pigmentation          | Moderate             |
| Nose                 |             | Fungus                | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 160

**TRT#:** 5

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.025 G/KG 79 LF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |  |  |                              |
|--|--|--|------------------------------|
| Pituitary Gland<br>Note: CYST<br>TGLs = 9-8  | Pars Intermed  | Inflammation<br>Cyst                                       | Acute, Mild                  |
| Spleen   |  | Depletion Lymphoid<br>Leukemia Mononuclear<br>Pigmentation | Mild<br>Mild                 |
| Note: CONGESTION AND DECREASED CELLULARITY IN RED PULP<br>Note: DEPLET LYMPH<br>TGLs = 5-3 |  |  |                              |
| Stomach  | Forestomach<br>Glandular<br>Forestomach<br>Glandular | Acanthosis<br>Fibrosis<br>Hyperkeratosis<br>Metaplasia     | Mild<br>Mild<br>Mild<br>Mild |
| Note: [ HYPERKERATOSIS ]<br>TGLs = 10-7  |  |  |                              |
| Thymus   |  | Leukemia Mononuclear                                       |                              |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 161

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Parathyroid Gland        | Salivary Glands            |
| Skin                    | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**OBSERVATIONS**

|  |              |                       |                      |
|--|--------------|-----------------------|----------------------|
| Clitoral Gland                         |              |                       |                      |
| Note: DISTENDED DUCT                   |              |                       |                      |
| Kidney                                 |              | Nephropathy           | Minimal              |
|  | Renal Tubule | Pigmentation          | Minimal              |
| Liver                                  |              | Angiectasis           | Minimal              |
|  |              | Basophilic Focus      |                      |
|  |              | Clear Cell Focus      |                      |
|  |              | Fatty Change          | Focal, Minimal       |
|  |              | Inflammation          | Granulomatous, Mild  |
|  |              | Leukemia Mononuclear  |                      |
|  |              | Pigmentation          | Minimal              |
| Note: BASOPH FOCUS    TGLs = 5-3       |              |                       |                      |
| Lung                                   |              | Infiltration Cellular | Histiocyte, Minimal  |
| Lymph Node                             | Mandibular   | Infiltration Cellular | Histiocyte, Minimal  |
|  | Mediastinal  | Infiltration Cellular | Histiocyte, Minimal  |
|  | Mesenteric   | Infiltration Cellular | Histiocyte, Moderate |
|  | Mesenteric   | Pigmentation          | Mild                 |
| Note: INFILTRAT CELL    TGLs = 4-8     |              |                       |                      |
| Mammary Gland                          |              | Fibroadenoma          |                      |
| Note: FIBROADENOMA    TGLs = 2-13+13.1 |              |                       |                      |
| Mesentery                              | Fat          | Necrosis              | Moderate             |
| Note: NECROSIS        TGLs = 7-6       |              |                       |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 161 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 748 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                 |               |                                  |                   |
|-----------------|---------------|----------------------------------|-------------------|
| Pituitary Gland | Pars Distalis | Hyperplasia                      | Mild              |
| Spleen          |               | Hematopoietic Cell Proliferation | Mild              |
|                 |               | Infiltration Cellular            | Histiocyte, Mild  |
|                 |               | Leukemia Mononuclear             |                   |
|                 |               | Pigmentation                     | Minimal           |
| Stomach         | Forestomach   | Pigmentation                     | Hemosiderin, Mild |
|                 | Glandular     | Acanthosis                       | Mild              |
|                 | Glandular     | Fibrosis                         | Mild              |
| Thymus          |               | Metaplasia                       | Minimal           |
|                 |               | Pigmentation                     | Minimal           |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 162

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                         |                          |                         |
|-------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                   | Clitoral Gland          | Esophagus                | Heart                   |
| Intestine Large - Cecum | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Islets, Pancreatic      | Mammary Gland           | Nose                     | Ovary                   |
| Pancreas                | Parathyroid Gland       | Pituitary Gland          | Salivary Glands         |
| Skin                    | Trachea                 | Urinary Bladder          |                         |

**OBSERVATIONS**

|   |              |                                  |                      |
|---|--------------|----------------------------------|----------------------|
| Intestine Small                                 | Duodenum     | Pigmentation                     | Minimal              |
|   | Jejunum      | Pigmentation                     | Minimal              |
| Kidney  |              | Nephropathy                      | Minimal              |
|   | Renal Tubule | Pigmentation                     | Minimal              |
| Liver   |              | Basophilic Focus                 |                      |
|   |              | Inflammation                     | Granulomatous, Mild  |
|   |              | Pigmentation                     | Minimal              |
| Note: MULTIPLE FOCI OF GRANULOMATOUS STRUCTURES |              |                                  |                      |
| Note: INFLAMMATION TGLs = 6-3                   |              |                                  |                      |
| Lung  |              | Infiltration Cellular            | Histiocyte, Minimal  |
|   |              | Pigmentation                     | Minimal              |
| Note: MUCINOUS MATERIAL IN A BRONCHIOLE         |              |                                  |                      |
| Lymph Node                                      | Mandibular   | Infiltration Cellular            | Histiocyte, Minimal  |
|   | Mediastinal  | Infiltration Cellular            | Histiocyte, Mild     |
|   | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild     |
|   | Pancreatic   | Infiltration Cellular            | Histiocyte, Moderate |
|   | Mediastinal  | Pigmentation                     | Minimal              |
|   | Mesenteric   | Pigmentation                     | Mild                 |
|   | Pancreatic   | Pigmentation                     | Moderate             |
| Note: INFILTRAT CELL TGLs = 4-9                 |              |                                  |                      |
| Spleen  |              | Hematopoietic Cell Proliferation | Mild                 |
|   |              | Infiltration Cellular            | Histiocyte, Mild     |
|   |              | Inflammation                     | Granulomatous, Mild  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 162

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: INFLAMMATION TGLs = 3-3.1  
Stomach

Glandular  
Forestomach  
Glandular  
Glandular  
Fat  
Forestomach

Pigmentation  
Pigmentation  
Fibrosis  
Hyperkeratosis  
Metaplasia  
Pigmentation  
Proliferation  
Squamous Cell Papilloma

Mild  
Hemosiderin, Mild  
Mild  
Moderate  
Minimal  
Mild  
Moderate

Note: [ PAPILLOMA SQUA ] TGLs = 8-7  
Thymus  
Thyroid Gland  
Uterus

C Cell

Pigmentation  
Hyperplasia  
Hemorrhage  
Polyp Stromal

Minimal  
Minimal  
Moderate

Note: POLYP STROMAL TGLs = 5-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 164

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 742

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                           |                         |
|--------------------------|----------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                       | Brain                     | Clitoral Gland          |
| Esophagus                | Eye                        | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Mammary Gland            | Ovary                      | Pancreas                  | Pituitary Gland         |
| Salivary Glands          | Skin                       | Stomach - Forestomach     | Thyroid Gland           |
| Trachea                  | Urinary Bladder            |                           |                         |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|   |              |                       |                      |
|---|--------------|-----------------------|----------------------|
| Adrenal Gland   | Medulla      | Hyperplasia           | Minimal              |
| Bone Marrow   |              | Pigmentation          | Minimal              |
| Ear   | Canal        | Abscess               | Marked               |
| Note: BOTH DEGENERATION AND REGENERATION OF BONE      |              |                       |                      |
| Harderian Gland                                       |              | Pigmentation          | Moderate             |
| Note: THE PORPHYRIN PIGMENT                           |              |                       |                      |
| Note: THE YELLOW PIGMENT APPEARS TO BE DIFFERENT FROM |              |                       |                      |
| Heart   |              | Cardiomyopathy        | Mild                 |
| Intestine Small                                       | Ileum        | Pigmentation          | Minimal              |
| Kidney  |              | Nephropathy           | Minimal              |
|   | Renal Tubule | Pigmentation          | Mild                 |
| Liver   |              | Basophilic Focus      |                      |
|   |              | Fatty Change          | Diffuse, Minimal     |
|   |              | Pigmentation          | Mild                 |
| Lung  |              | Infiltration Cellular | Histiocyte, Minimal  |
| Lymph Node  | Mandibular   | Infiltration Cellular | Histiocyte, Mild     |
|   | Mediastinal  | Infiltration Cellular | Histiocyte, Mild     |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Moderate |
|   | Mediastinal  | Pigmentation          | Minimal              |
|   | Mesenteric   | Pigmentation          | Moderate             |

Note: INFILTRAT CELL TGLs = 2-9

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 164

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 742

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|         |           |                                  |                   |
|---------|-----------|----------------------------------|-------------------|
| Nose    |           | Inflammation                     | Acute, Minimal    |
| Spleen  |           | Hematopoietic Cell Proliferation | Mild              |
|         |           | Infiltration Cellular            | Histiocyte, Mild  |
|         |           | Pigmentation                     | Minimal           |
|         |           | Pigmentation                     | Hemosiderin, Mild |
| Stomach | Glandular | Fibrosis                         | Mild              |
|         | Glandular | Hyperplasia                      | Minimal           |
|         | Glandular | Metaplasia                       | Minimal           |
|         | Glandular | Pigmentation                     | Mild              |
|         | Fat       | Proliferation                    | Marked            |
| Thymus  |           | Pigmentation                     | Minimal           |
| Uterus  |           | Polyp Stromal                    |                   |

Note: POLYP STROMAL TGLs = 7-6

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 165

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 665

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Bone                      | Brain                   | Clitoral Gland           | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            | Nose                    |
| Pancreas                  | Parathyroid Gland       | Salivary Glands          | Skin                    |
| Thyroid Gland             | Trachea                 | Urinary Bladder          | Uterus                  |

**OBSERVATIONS**

|   |              |                      |               |
|---|--------------|----------------------|---------------|
| Adrenal Gland   | Cortex       | Leukemia Mononuclear |               |
|   | Medulla      | Leukemia Mononuclear |               |
| Note: LEUKEMIA MONUC TGLs = 4-8                         |              |                      |               |
| Bone Marrow   |              | Pigmentation         | Minimal       |
| Eye   | Retina       | Atrophy              | Mild          |
|   |              | Leukemia Mononuclear |               |
|   |              | Synechia             | Mild          |
| Note: ATROPHY TGLs = 2-13                               |              |                      |               |
| Harderian Gland   |              | Pigmentation         | Mild          |
| Note: THIS PIGMENT SEEMS TO BE DIFFERENT FROM PORPHYRIN |              |                      |               |
| Heart   |              | Leukemia Mononuclear |               |
| Intestine Small   | Duodenum     | Pigmentation         | Minimal       |
| Kidney  |              | Leukemia Mononuclear |               |
|   | Renal Tubule | Pigmentation         | Minimal       |
| Note: LEUKEMIA MONUC TGLs = 5-4                         |              |                      |               |
| Liver   |              | Fatty Change         | Diffuse, Mild |
|   |              | Leukemia Mononuclear |               |
|   |              | Pigmentation         | Minimal       |
| Note: LEUKEMIA MONUC TGLs = 7-3                         |              |                      |               |
| Lung  |              | Leukemia Mononuclear |               |
| Lymph Node  | Mandibular   | Leukemia Mononuclear |               |
|   | Mediastinal  | Leukemia Mononuclear |               |
|   | Mesenteric   | Leukemia Mononuclear |               |
|   | Pancreatic   | Leukemia Mononuclear |               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 165

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 665

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |  |  |   |
|--|--|--|---|
| Note: LEUKEMIA MONUC TGLs = 3-9<br>Ovary<br>Pituitary Gland                      | Pars Distalis  | Leukemia Mononuclear<br>Angiectasis<br>Leukemia Mononuclear  | Mild  |
| Note: [ LEUKEMIA MONUC ] TGLs = 8-8<br>Spleen                                    |  | Leukemia Mononuclear   |   |
| Note: LEUKEMIA MONUC TGLs = 6-3<br>Stomach                                       | Forestomach<br>Glandular<br>Glandular<br>Forestomach<br>Forestomach<br>Glandular<br>Glandular<br>Fat | Acanthosis<br>Erosion<br>Fibrosis<br>Hyperkeratosis<br>Leukemia Mononuclear<br>Leukemia Mononuclear<br>Metaplasia<br>Proliferation | Mild<br>Mild<br>Mild<br>Mild<br><br>Minimal<br>Mild |
| Note: [ EROSION ] TGLs = 9-7<br>Note: MORE LIKE BASAL CELL HYPERPLASIA<br>Thymus |  | Leukemia Mononuclear<br>Pigmentation   | Minimal   |

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 167

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 234

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Bone Marrow              |
| Brain                      | Clitoral Gland          | Ear                       | Esophagus                |
| Eye                        | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Kidney                     | Lymph Node - Mandibular | Lymph Node - Mesenteric   | Mammary Gland            |
| Nose                       | Ovary                   | Pancreas                  | Parathyroid Gland        |
| Pituitary Gland            | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Thyroid Gland              | Trachea                 | Urinary Bladder           | Uterus                   |

**MISSING**

Thymus

**OBSERVATIONS**

|         |  |                                  |                        |
|---------|--|----------------------------------|------------------------|
| Heart   |  | Cardiomyopathy                   | Minimal                |
| Liver   |  | Inflammation                     | Granulomatous, Minimal |
|         |  | Pigmentation                     | Minimal                |
| Lung    |  | Infiltration Cellular            | Histiocyte, Minimal    |
|         | [ Infiltration Cellular TGLS = 3-1+2 ] |                                  |                        |
| Spleen  |  | Hematopoietic Cell Proliferation | Mild                   |
| Stomach | Glandular                              | Fibrosis                         | Minimal                |
|         | Glandular                              | Metaplasia                       | Minimal                |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 169

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 338

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Clitoral Gland          | Esophagus                | Harderian Gland         | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Liver                    | Mammary Gland           | Nose                      |
| Ovary                   | Pancreas                 | Parathyroid Gland       | Pituitary Gland           |
| Salivary Glands         | Skin                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder         | Uterus                   |                         |                           |

**OBSERVATIONS**

|                                  |                |                                  |                     |
|----------------------------------|----------------|----------------------------------|---------------------|
| Bone Marrow                      |                | Pigmentation                     | Minimal             |
| Eye                              |                | Synechia                         | Minimal             |
| Note: SYNECHIA                   | TGLs = 1-6     |                                  |                     |
| Heart                            |                | Cardiomyopathy                   | Minimal             |
| Intestine Small                  | Duodenum       | Pigmentation                     | Minimal             |
| Kidney                           | Papilla        | Mineralization                   | Minimal             |
| Lung                             |                | Infiltration Cellular            | Histiocyte, Mild    |
|                                  |                | Inflammation                     | Acute, Moderate     |
| Note: MORE LIKE BRONCHOPNEUMONIA |                |                                  |                     |
| [ Inflammation TGLS = 4-1+2 ]    |                |                                  |                     |
| Lymph Node                       | Mediastinal    | Infiltration Cellular            | Histiocyte, Minimal |
|                                  | Mandibular     | Pigmentation                     | Minimal             |
|                                  | Mediastinal    | Pigmentation                     | Mild                |
|                                  | Mesenteric     | Pigmentation                     | Mild                |
| Note: PIGMENT                    | TGLs = 3-2,6-8 |                                  |                     |
| Nose                             |                |                                  |                     |
| Note: BLOOD IN NASAL CAVITY      |                |                                  |                     |
| Spleen                           |                | Hematopoietic Cell Proliferation | Mild                |
|                                  |                | Pigmentation                     | Hemosiderin, Mild   |
| Stomach                          | Forestomach    | Acanthosis                       | Mild                |
|                                  | Glandular      | Fibrosis                         | Mild                |
|                                  | Forestomach    | Hyperkeratosis                   | Mild                |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 169

**TRT#:** 6  
**DOSE:** 0.05 G/KG 79 HF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 338  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|        |           |                            |                    |
|--------|-----------|----------------------------|--------------------|
| Thymus | Glandular | Metaplasia<br>Pigmentation | Minimal<br>Minimal |
|--------|-----------|----------------------------|--------------------|

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:28  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 170

TRT#: 6

SEX: Female

DAY ON TEST: 744

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland            | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Trachea                   |
| Urinary Bladder         | Uterus                   |                         |                           |

OBSERVATIONS

|  |               |                       |                        |
|--|---------------|-----------------------|------------------------|
| Bone Marrow                              |               | Pigmentation          | Minimal                |
| Intestine Small                          | Duodenum      | Pigmentation          | Minimal                |
| Kidney                                   |               | Nephropathy           | Mild                   |
|  | Renal Tubule  | Pigmentation          | Minimal                |
| Liver                                    |               | Basophilic Focus      |                        |
|  |               | Clear Cell Focus      |                        |
|  |               | Fatty Change          | Focal, Minimal         |
|  |               | Inflammation          | Granulomatous, Minimal |
|  |               | Pigmentation          | Minimal                |
| Note: [ BASOPH FOCUS ] TGLs = 8,9-3      |               |                       |                        |
| Lung                                     |               | Infiltration Cellular | Histiocyte, Minimal    |
|  |               | Pigmentation          | Minimal                |
| Lymph Node                               | Mandibular    | Infiltration Cellular | Histiocyte, Minimal    |
|  | Mediastinal   | Infiltration Cellular | Histiocyte, Minimal    |
|  | Mesenteric    | Infiltration Cellular | Histiocyte, Mild       |
|  | Pancreatic    | Infiltration Cellular | Histiocyte, Mild       |
|  | Mediastinal   | Pigmentation          | Minimal                |
|  | Mesenteric    | Pigmentation          | Mild                   |
|  | Pancreatic    | Pigmentation          | Mild                   |
| Note: INFILTRAT CELL TGLs = 1-9,6-8,11-9 |               |                       |                        |
| Nose                                     |               | Inflammation          | Acute, Mild            |
| Pituitary Gland                          | Pars Distalis | Cyst                  |                        |
|  | Pars Distalis | Hyperplasia           | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 170 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 744 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                   |             |                                  |                   |
|-------------------|-------------|----------------------------------|-------------------|
| Note: CYST        | TGLs = 10-8 |                                  |                   |
| Spleen            |             | Hematopoietic Cell Proliferation | Mild              |
|                   |             | Infiltration Cellular            | Histiocyte, Mild  |
|                   |             | Pigmentation                     | Hemosiderin, Mild |
|                   |             | Pigmentation                     | Mild              |
| Stomach           | Forestomach | Acanthosis                       | Mild              |
|                   | Glandular   | Fibrosis                         | Mild              |
|                   | Forestomach | Hyperkeratosis                   | Mild              |
|                   | Glandular   | Hyperplasia                      | Mild              |
|                   | Glandular   | Metaplasia                       | Mild              |
|                   | Glandular   | Pigmentation                     | Minimal           |
|                   | Fat         | Proliferation                    | Marked            |
| Note: HYPERPLASIA | TGLs = 12-7 |                                  |                   |
| Thymus            |             | Pigmentation                     | Minimal           |
| Thyroid Gland     | C Cell      | Hyperplasia                      | Mild              |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 172

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 457

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                    | Bone Marrow              |
| Brain                   | Clitoral Gland            | Ear                     | Esophagus                |
| Heart                   | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Ovary                    |
| Pancreas                | Parathyroid Gland         | Pituitary Gland         | Salivary Glands          |
| Skin                    | Thyroid Gland             | Trachea                 | Urinary Bladder          |
| Uterus                  |                           |                         |                          |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |              |                                  |                      |
|--|--------------|----------------------------------|----------------------|
| Intestine Small                        | Duodenum     | Pigmentation                     | Mild                 |
| Kidney                                 | Renal Tubule | Pigmentation                     | Minimal              |
| Liver                                  |              | Basophilic Focus                 |                      |
|  |              | Fatty Change                     | Diffuse, Minimal     |
|  |              | Pigmentation                     | Minimal              |
| Note: PIGMENT IN PORTAL RADICLES       |              |                                  |                      |
| Lung                                   |              | Edema                            | Mild                 |
|  |              | Infiltration Cellular            | Histiocyte, Minimal  |
|  |              | Pigmentation                     | Minimal              |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES |              |                                  |                      |
| Lymph Node                             | Mandibular   | Infiltration Cellular            | Histiocyte, Minimal  |
|  | Mesenteric   | Infiltration Cellular            | Histiocyte, Moderate |
|  | Mesenteric   | Pigmentation                     | Mild                 |
| Note: INFILTRAT CELL TGLs = 4-7        |              |                                  |                      |
| Nose                                   |              | Inflammation                     | Acute, Mild          |
| Spleen                                 |              | Hematopoietic Cell Proliferation | Mild                 |
|  |              | Infiltration Cellular            | Histiocyte, Mild     |
| Stomach                                | Glandular    | Erosion                          | Minimal              |
|  | Glandular    | Fibrosis                         | Mild                 |
|  | Glandular    | Hyperplasia                      | Minimal              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 172

**TRT#:** 6  
**DOSE:** 0.05 G/KG 79 HF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 457  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|             |               |                |
|-------------|---------------|----------------|
| Forestomach | Inflammation  | Acute, Minimal |
| Glandular   | Metaplasia    | Minimal        |
| Fat         | Proliferation | Minimal        |
| Thymus      | Pigmentation  | Minimal        |

Note: FIBROSIS TGLs = 2-7

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:28

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 173

TRT#: 6

SEX: Female

DAY ON TEST: 748

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Medulla  | Bone                    | Brain                   | Clitoral Gland          |
| Esophagus                | Heart                   | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Nose                    |
| Ovary                    | Parathyroid Gland       | Salivary Glands         | Skin                    |
| Thyroid Gland            | Trachea                 | Urinary Bladder         | Uterus                  |

OBSERVATIONS

|   |              |                       |                        |
|---|--------------|-----------------------|------------------------|
| Adrenal Gland                             | Cortex       | Hyperplasia           | Mild                   |
| Bone Marrow                               |              | Pigmentation          | Minimal                |
| Intestine Small                           | Duodenum     | Pigmentation          | Minimal                |
|   | Jejunum      | Pigmentation          | Minimal                |
| Kidney                                    |              | Nephropathy           | Minimal                |
|   | Renal Tubule | Pigmentation          | Minimal                |
| Liver                                     |              | Basophilic Focus      |                        |
|   |              | Clear Cell Focus      |                        |
|   |              | Inflammation          | Granulomatous, Minimal |
|   |              | Pigmentation          | Minimal                |
| Lung                                      |              | Infiltration Cellular | Histiocyte, Mild       |
|   |              | Inflammation          | Granulomatous, Minimal |
|   |              | Pigmentation          | Minimal                |
| Note: MUCINOUS MATERIAL, HISTIOCYTES, AND |              |                       |                        |
| Note: NEUTROPHILS IN A BRONCHIOLE         |              |                       |                        |
| Lymph Node                                | Mandibular   | Infiltration Cellular | Histiocyte, Mild       |
|   | Mediastinal  | Infiltration Cellular | Histiocyte, Mild       |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Moderate   |
|   | Mediastinal  | Pigmentation          | Mild                   |
|   | Mesenteric   | Pigmentation          | Moderate               |
| Note: PIGMENT TGLs = 2-8                  |              |                       |                        |
| Mammary Gland                             |              | Fibroadenoma          |                        |
| Note: FIBROADENOMA TGLs = 1-13            |              |                       |                        |
| Pancreas                                  | Acinus       | Hyperplasia           | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 173

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |               |                                  |                   |
|------------------------|---------------|----------------------------------|-------------------|
| Pituitary Gland        | Pars Distalis | Angiectasis                      | Mild              |
|                        | Pars Distalis | Hyperplasia                      | Minimal           |
| Spleen                 |               | Hematopoietic Cell Proliferation | Minimal           |
|                        |               | Infiltration Cellular            | Histiocyte, Mild  |
|                        |               | Pigmentation                     | Mild              |
|                        |               | Pigmentation                     | Hemosiderin, Mild |
| Stomach                | Forestomach   | Acanthosis                       | Mild              |
|                        | Glandular     | Fibrosis                         | Mild              |
|                        | Forestomach   | Hyperkeratosis                   | Minimal           |
|                        | Glandular     | Hyperplasia                      | Minimal           |
|                        | Glandular     | Metaplasia                       | Minimal           |
|                        | Glandular     | Pigmentation                     | Minimal           |
|                        | Fat           | Proliferation                    | Mild              |
| Note: ACANTHOSIS       | TGLs = 3-7    |                                  |                   |
| Thymus                 |               | Pigmentation                     | Minimal           |
| PRIMARY CAUSE OF DEATH | -             |                                  |                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 175

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Trachea                   |
| Urinary Bladder         |                          |                         |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |                |                                  |                     |
|--|----------------|----------------------------------|---------------------|
| Bone Marrow                            |                | Pigmentation                     | Minimal             |
| Intestine Small                        | Duodenum       | Pigmentation                     | Minimal             |
| Kidney                                 |                | Nephropathy                      | Mild                |
| Liver                                  |                | Basophilic Focus                 |                     |
|  |                | Clear Cell Focus                 |                     |
|  |                | Inflammation                     | Granulomatous, Mild |
|  |                | Pigmentation                     | Mild                |
| Lung                                   | Alveolar Epith | Hyperplasia                      | Minimal             |
|  |                | Infiltration Cellular            | Histiocyte, Mild    |
|  |                | Pigmentation                     | Minimal             |
| [ Infiltration Cellular TGLS = 1-1+2 ] |                |                                  |                     |
| Lymph Node                             | Mandibular     | Infiltration Cellular            | Histiocyte, Mild    |
|  | Mesenteric     | Infiltration Cellular            | Histiocyte, Mild    |
|  | Mandibular     | Pigmentation                     | Mild                |
|  | Mesenteric     | Pigmentation                     | Moderate            |
| Pituitary Gland                        | Pars Distalis  | Hyperplasia                      | Mild                |
| Spleen                                 |                | Hematopoietic Cell Proliferation | Mild                |
|  |                | Infiltration Cellular            | Histiocyte, Minimal |
|  |                | Pigmentation                     | Hemosiderin, Mild   |
|  |                | Pigmentation                     | Minimal             |
| Stomach                                | Forestomach    | Acanthosis                       | Minimal             |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 175

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|               |               |         |
|---------------|---------------|---------|
| Glandular     | Fibrosis      | Mild    |
| Glandular     | Metaplasia    | Mild    |
| Glandular     | Pigmentation  | Minimal |
| Fat           | Proliferation | Mild    |
| Thymus        | Pigmentation  | Minimal |
| Thyroid Gland | Hyperplasia   | Minimal |
| Uterus        | Cyst          |         |

Note: MORE LIKE ATROPHIC GASTRITIS

Thymus

Thyroid Gland

Uterus

Note: CYST TGLs = 2-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 176

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Clitoral Gland           | Esophagus               | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Lymph Node - Mandibular |
| Ovary                    | Salivary Glands         | Skin                    | Stomach - Forestomach   |
| Thyroid Gland            | Trachea                 | Urinary Bladder         |                         |

**MISSING**

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

**OBSERVATIONS**

|                                   |                   |                       |                        |
|-----------------------------------|-------------------|-----------------------|------------------------|
| Bone Marrow                       |                   | Pigmentation          | Minimal                |
| Eye                               | Retina            | Atrophy               | Mild                   |
| Heart                             |                   | Cardiomyopathy        | Mild                   |
| Intestine Small                   | Duodenum          | Pigmentation          | Minimal                |
|                                   | Jejunum           | Pigmentation          | Minimal                |
| Kidney                            |                   | Nephropathy           | Mild                   |
| Liver                             |                   | Basophilic Focus      |                        |
|                                   |                   | Clear Cell Focus      |                        |
|                                   |                   | Inflammation          | Granulomatous, Minimal |
|                                   |                   | Pigmentation          | Minimal                |
| Note: CLEAR CL FOCUS TGLs = 6-3.1 |                   |                       |                        |
| Lung                              | Alveolar Epith    | Hyperplasia           | Minimal                |
|                                   |                   | Infiltration Cellular | Histiocyte, Minimal    |
|                                   |                   | Inflammation          | Granulomatous, Mild    |
|                                   |                   | Pigmentation          | Minimal                |
| Note: INFILTRAT CELL TGLs = 3-1+2 |                   |                       |                        |
| Note: INFLAMMATION TGLs = 2-1     |                   |                       |                        |
| Lymph Node                        | Mesenteric        | Infiltration Cellular | Histiocyte, Mild       |
|                                   | Mesenteric        | Pigmentation          | Mild                   |
| Nose                              | Glands, Submucosa | Hyperplasia           | Mild                   |
| Pancreas                          | Acinus            | Hyperplasia           | Mild                   |
| Pituitary Gland                   | Pars Distalis     | Adenoma               |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:28  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 176

**TRT#:** 6  
**DOSE:** 0.05 G/KG 79 HF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 748  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                |               |  |  |
|--------------------------------|---------------|--|--|
| Spleen                         | Pars Distalis | Angiectasis<br>Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation | Mild<br>Minimal<br>Histiocyte, Mild<br>Hemosiderin, Mild |
| Stomach                        | Glandular     | Pigmentation   | Mild   |
| Thymus                         | Glandular     | Fibrosis   | Minimal  |
| Uterus                         |               | Pigmentation   | Minimal  |
|                                |               | Polyp Stromal  |  |
| Note: POLYP STROMAL TGLs = 8-6 |               |  |  |

PRIMARY CAUSE OF DEATH

-

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 178      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 493  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Moribund      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Bone Marrow               |
| Brain                    | Clitoral Gland             | Esophagus               | Eye                       |
| Harderian Gland          | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Skin                     | Thymus                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

**OBSERVATIONS**

|   |               |                                  |                      |
|---|---------------|----------------------------------|----------------------|
| Kidney  | Renal Tubule  | Pigmentation                     | Minimal              |
| Liver   |               | Basophilic Focus                 |                      |
| Note: PIGMENT IN PORTAL RADICLES                    |               |                                  |                      |
| Lung  |               | Atelectasis                      | Mild                 |
|   |               | Infiltration Cellular            | Histiocyte, Minimal  |
|   |               | Inflammation                     | Acute, Mild          |
|   |               | Pigmentation                     | Mild                 |
| Note: TALL CILIATED BRONCHIAL EPITHELIUM. MUCINOUS  |               |                                  |                      |
| Note: PIGMENT, CHOLESTEROL CLEFTS, AND NEUTROPHILS. |               |                                  |                      |
| Note: MATERIAL IN BRONCHIOLES.                      |               |                                  |                      |
| [ Pigmentation TGLS = 4-1+2,5-1+2 ]                 |               |                                  |                      |
| Lymph Node  | Mediastinal   | Infiltration Cellular            | Histiocyte, Mild     |
|   | Mesenteric    | Infiltration Cellular            | Histiocyte, Moderate |
| [ Infiltration Cellular TGLS = 6-8 ]                |               |                                  |                      |
| Pituitary Gland                                     | Pars Distalis | Angiectasis                      | Mild                 |
| Spleen  |               | Hematopoietic Cell Proliferation | Moderate             |
| Stomach   | Forestomach   | Acanthosis                       | Minimal              |
|   | Glandular     | Erosion                          | Mild                 |
|   | Glandular     | Fibrosis                         | Mild                 |
|   | Glandular     | Hyperplasia                      | Mild                 |
|   | Glandular     | Metaplasia                       | Mild                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 178

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 493

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Glandular  
Fat

Pigmentation  
Proliferation

Minimal  
Moderate

Note: AREAS OF INTESTINAL METAPLASIA

Note: HYPERPLASIA TGLs = 7-7

Uterus

Necrosis  
Prolapse

Mild

Note: PROLAPSE TGLs = 1-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 180

TRT#: 6

SEX: Female

DAY ON TEST: 748

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Bone                       | Brain                   | Esophagus                 |
| Eye                      | Harderian Gland            | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Nose                       | Ovary                   | Parathyroid Gland         |
| Salivary Glands          | Skin                       | Stomach - Forestomach   | Trachea                   |
| Urinary Bladder          |                            |                         |                           |

OBSERVATIONS

|  |             |                            |                        |
|--|-------------|----------------------------|------------------------|
| Adrenal Gland  | Medulla     | Hyperplasia                | Minimal                |
| Bone Marrow  |             | Pigmentation               | Minimal                |
| Clitoral Gland   |             | Inflammation               | Acute, Moderate        |
| Note: INFLAMMATION TGLs = 3-10                         |             |                            |                        |
| Heart  |             | Cardiomyopathy             | Mild                   |
| Kidney   |             | Nephropathy                | Moderate               |
| Liver  |             | Basophilic Focus           |                        |
|  |             | Hepatodiaphragmatic Nodule |                        |
|  |             | Inflammation               | Granulomatous, Minimal |
|  |             | Mixed Cell Focus           |                        |
|  |             | Pigmentation               | Minimal                |
| Note: MIXED CL FOCUS TGLs = 11-3.1,12-3                |             |                            |                        |
| Note: SECTION CIRCLED IS MORE LIKE A NEOPLASTIC NODULE |             |                            |                        |
| Note: ANOM HEPAT LOB TGLs = 15-3.1                     |             |                            |                        |
| Lung   |             | Atelectasis                | Mild                   |
|  |             | Infiltration Cellular      | Histiocyte, Mild       |
|  |             | Inflammation               | Acute, Minimal         |
|  |             | Inflammation               | Granulomatous, Minimal |
|  |             | Pigmentation               | Mild                   |
| Note: INFILTRAT CELL TGLs = 4-1+2+2.1                  |             |                            |                        |
| Note: IN BRONCHIOLES                                   |             |                            |                        |
| Note: CHOLESTEROL CLEFTS. MUCINOUS MATERIAL            |             |                            |                        |
| Lymph Node   | Mediastinal | Infiltration Cellular      | Histiocyte, Minimal    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 180 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 748 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                 |               |                                  |                     |
|---------------------------------|---------------|----------------------------------|---------------------|
|                                 | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                                 | Pancreatic    | Infiltration Cellular            | Histiocyte, Mild    |
|                                 | Mandibular    | Pigmentation                     | Mild                |
|                                 | Mediastinal   | Pigmentation                     | Mild                |
|                                 | Mesenteric    | Pigmentation                     | Mild                |
|                                 | Pancreatic    | Pigmentation                     | Moderate            |
| Note: INFILTRAT CELL TGLs = 8-9 |               |                                  |                     |
| Mammary Gland                   |               | Fibroadenoma                     |                     |
| Note: FIBROADENOMA TGLs = 2-14  |               |                                  |                     |
| Mesentery                       | Fat           | Necrosis                         | Mild                |
| Note: NECROSIS TGLs = 13-15     |               |                                  |                     |
| Pancreas                        | Acinus        | Hyperplasia                      | Minimal             |
| Pituitary Gland                 | Pars Distalis | Adenoma                          |                     |
|                                 | Pars Distalis | Angiectasis                      | Mild                |
| Note: ADENOMA TGLs = 14-8       |               |                                  |                     |
| Spleen                          |               | Hematopoietic Cell Proliferation | Mild                |
|                                 |               | Infiltration Cellular            | Histiocyte, Minimal |
|                                 |               | Pigmentation                     | Mild                |
|                                 |               | Pigmentation                     | Hemosiderin, Mild   |
| Stomach                         | Glandular     | Fibrosis                         | Minimal             |
| Thymus                          |               | Pigmentation                     | Minimal             |
| Thyroid Gland                   | C Cell        | Hyperplasia                      | Mild                |
| Uterus                          |               | Polyp Stromal                    |                     |
| Note: POLYP STROMAL TGLs = 9-6  |               |                                  |                     |
| <b>PRIMARY CAUSE OF DEATH</b>   | -             |                                  |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 181

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Bone                      | Brain                   | Clitoral Gland           | Esophagus               |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Mesentery                | Nose                    |
| Pancreas                  | Parathyroid Gland       | Salivary Glands          | Skin                    |
| Thyroid Gland             | Trachea                 | Urinary Bladder          | Uterus                  |

**OBSERVATIONS**

|  |              |                       |                     |
|--|--------------|-----------------------|---------------------|
| Adrenal Gland                          | Cortex       | Leukemia Mononuclear  |                     |
|  | Medulla      | Leukemia Mononuclear  |                     |
| Bone Marrow                            |              | Leukemia Mononuclear  |                     |
| Heart                                  |              | Cardiomyopathy        | Mild                |
|  |              | Leukemia Mononuclear  |                     |
| Intestine Small                        | Duodenum     | Pigmentation          | Minimal             |
| Kidney                                 |              | Leukemia Mononuclear  |                     |
|  |              | Nephropathy           | Minimal             |
|  | Renal Tubule | Pigmentation          | Mild                |
| Liver                                  |              | Leukemia Mononuclear  |                     |
|  |              | Pigmentation          | Minimal             |
| Note: LEUKEMIA MONUC TGLs = 7-3        |              |                       |                     |
| Lung                                   |              | Infiltration Cellular | Histiocyte, Minimal |
|  |              | Leukemia Mononuclear  |                     |
|  |              | Pigmentation          | Minimal             |
| [ Infiltration Cellular TGLS = 3-1+2 ] |              |                       |                     |
| Lymph Node                             | Pancreatic   | Infiltration Cellular | Histiocyte, Mild    |
|  | Mandibular   | Leukemia Mononuclear  |                     |
|  | Mediastinal  | Leukemia Mononuclear  |                     |
|  | Mesenteric   | Leukemia Mononuclear  |                     |
|  | Pancreatic   | Leukemia Mononuclear  |                     |
|  | Mesenteric   | Pigmentation          | Mild                |
|  | Pancreatic   | Pigmentation          | Mild                |
| Note: LEUKEMIA MONUC TGLs = 6-9        |              |                       |                     |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 181 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 748 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                       |                       |                         |          |
|---------------------------------------|-----------------------|-------------------------|----------|
| Mammary Gland                         |                       | Fibroadenoma            | Multiple |
| Note: FIBROADENOMA                    | TGLs = 1-13,2-14+14.1 |                         |          |
| Ovary                                 |                       | Leukemia Mononuclear    |          |
| Pituitary Gland                       | Pars Distalis         | Hyperplasia             | Mild     |
| Spleen                                |                       | Leukemia Mononuclear    |          |
| [ Leukemia Mononuclear TGLS = 4-3.1 ] |                       |                         |          |
| Stomach                               | Forestomach           | Acanthosis              | Moderate |
|                                       | Glandular             | Fibrosis                | Mild     |
|                                       | Forestomach           | Hyperkeratosis          | Mild     |
|                                       | Glandular             | Hyperplasia             | Minimal  |
|                                       | Glandular             | Metaplasia              | Minimal  |
|                                       | Glandular             | Pigmentation            | Minimal  |
|                                       | Fat                   | Proliferation           | Moderate |
|                                       | Forestomach           | Squamous Cell Papilloma |          |
| Note: ACANTHOSIS                      | TGLs = 8-7            |                         |          |
| Thymus                                |                       | Leukemia Mononuclear    |          |
|                                       |                       | Pigmentation            | Minimal  |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 182

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 307

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                    | Brain                   |
| Esophagus                | Heart                   | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Kidney                  |
| Nose                     | Ovary                   | Pancreas                | Pituitary Gland         |
| Salivary Glands          | Stomach - Forestomach   | Thymus                  | Trachea                 |
| Urinary Bladder          | Uterus                  |                         |                         |

**MISSING**

|                |               |                   |      |
|----------------|---------------|-------------------|------|
| Clitoral Gland | Mammary Gland | Parathyroid Gland | Skin |
| Thyroid Gland  |               |                   |      |

**OBSERVATIONS**

|  |             |                       |                     |
|--|-------------|-----------------------|---------------------|
| Bone Marrow  |             | Pigmentation          | Mild                |
| Intestine Small  | Duodenum    | Pigmentation          | Minimal             |
|  | Jejunum     | Pigmentation          | Minimal             |
| Liver  |             | Pigmentation          | Minimal             |
| Lung   |             | Edema                 | Moderate            |
|  |             | Infiltration Cellular | Histiocyte, Mild    |
|  |             | Inflammation          | Acute, Mild         |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES<br>[ Edema TGLS = 2-1+2 ] |             |                       |                     |
| Lymph Node   | Mediastinal | Infiltration Cellular | Histiocyte, Minimal |
|  | Mandibular  | Pigmentation          | Minimal             |
|  | Mediastinal | Pigmentation          | Minimal             |
|  | Mesenteric  | Pigmentation          | Mild                |
|  | Pancreatic  | Pigmentation          | Mild                |
| Note: PIGMENT TGLs = 4-9   |             |                       |                     |
| Spleen   |             | Depletion Lymphoid    | Mild                |
|  |             | Pigmentation          | Hemosiderin, Mild   |
| Stomach  | Glandular   | Metaplasia            | Minimal             |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 183

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 575

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                        |                         |           |                       |
|------------------------|-------------------------|-----------|-----------------------|
| Adrenal Gland - Cortex | Adrenal Gland - Medulla | Bone      | Bone Marrow           |
| Brain                  | Clitoral Gland          | Esophagus | Heart                 |
| Islets, Pancreatic     | Lung                    | Nose      | Ovary                 |
| Pancreas               | Salivary Glands         | Skin      | Stomach - Forestomach |
| Thymus                 | Thyroid Gland           | Trachea   | Urinary Bladder       |
| Uterus                 |                         |           |                       |

**MISSING**

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

**AUTO PRECLUDES DIAG.**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum |                          |                            |

**OBSERVATIONS**

|                                  |               |                                  |                     |
|----------------------------------|---------------|----------------------------------|---------------------|
| Kidney                           | Renal Tubule  | Pigmentation                     | Minimal             |
| Liver                            |               | Basophilic Focus                 |                     |
|                                  |               | Fatty Change                     | Diffuse, Mild       |
|                                  |               | Necrosis                         | Mild                |
| Note: PIGMENT IN PORTAL RADICLES |               |                                  |                     |
| Lymph Node                       | Mandibular    | Infiltration Cellular            | Histiocyte, Minimal |
|                                  | Mediastinal   | Infiltration Cellular            | Histiocyte, Mild    |
|                                  | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                                  | Pancreatic    | Infiltration Cellular            | Histiocyte, Mild    |
| Note: INFILTRAT CELL TGLs = 3-9  |               |                                  |                     |
| Pituitary Gland                  | Pars Distalis | Adenoma                          |                     |
|                                  | Pars Distalis | Angiectasis                      | Moderate            |
| Note: ADENOMA TGLs = 6-8         |               |                                  |                     |
| Spleen                           |               | Hematopoietic Cell Proliferation | Mild                |
| Stomach                          | Glandular     | Fibrosis                         | Mild                |
|                                  | Glandular     | Metaplasia                       | Minimal             |
|                                  | Fat           | Proliferation                    | Mild                |
| Tissue NOS                       |               | Hemorrhage                       | Moderate            |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:29

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 183

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 575

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Sarcoma

Note: SARCOMA TGLs = 4-13

Note: HEMORRHAGE TGLs = 5-13

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 184

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 457

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Brain                   |
| Clitoral Gland            | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       | Ovary                   |
| Pancreas                  | Parathyroid Gland        | Pituitary Gland            | Salivary Glands         |
| Stomach - Forestomach     | Thyroid Gland            | Trachea                    | Urinary Bladder         |
| Uterus                    |                          |                            |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |              |                  |                        |
|--|--------------|------------------|------------------------|
| Bone Marrow  |              | Pigmentation     | Minimal                |
| Kidney   | Renal Tubule | Hyperplasia      | Minimal                |
|  | Papilla      | Mineralization   | Minimal                |
|  | Renal Tubule | Pigmentation     | Minimal                |
| Liver  |              | Basophilic Focus |                        |
|  |              | Inflammation     | Granulomatous, Minimal |
|  |              | Pigmentation     | Minimal                |
| Lung   |              | Congestion       | Minimal                |
| Lymph Node   | Mandibular   | Pigmentation     | Minimal                |
|  | Mediastinal  | Pigmentation     | Minimal                |
|  | Mesenteric   | Pigmentation     | Mild                   |
|  | Pancreatic   | Pigmentation     | Mild                   |
| Note: PIGMENT  | TGLs = 5-8   |                  |                        |
| Mesentery  | Fat          | Necrosis         | Minimal                |
| Note: NECROSIS   | TGLs = 3-15  |                  |                        |
| Skin   | Subcut Tiss  | Sarcoma          |                        |
| Note: ECCENTRICALLY LOCATED NUCLEUS AND ABUNDANT         |              |                  |                        |
| Note: CELLS: 1) FUSIFORM AND 2) ROUND CELLS WITH AN      |              |                  |                        |
| Note: CYTOPLASM. SOME OF THE ROUND CELLS HAVE INCLUSIONS |              |                  |                        |
| Note: IN THE CYTOPLASM. THIS IS MORE A SARCOMA THAN A    |              |                  |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 184 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 457 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Moribund Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: MAMMARY GLAND TUMOR.

Note: SARCOMA TGLs = 1-13,2-14

Note: THE SUBCUTANEOUS NEOPLASM HAS TWO POPULATIONS OF

|         |           |                                  |             |
|---------|-----------|----------------------------------|-------------|
| Spleen  |           | Hematopoietic Cell Proliferation | Mild        |
| Stomach | Glandular | Erosion                          | Minimal     |
|         | Glandular | Fibrosis                         | Mild        |
|         | Glandular | Hyperplasia                      | Minimal     |
|         | Glandular | Inflammation                     | Acute, Mild |
|         | Glandular | Metaplasia                       | Minimal     |
|         | Fat       | Proliferation                    | Mild        |
| Thymus  |           | Pigmentation                     | Minimal     |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 185

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Bone Marrow              |
| Brain                      | Clitoral Gland          | Esophagus                 | Eye                      |
| Harderian Gland            | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lymph Node - Mandibular    | Mammary Gland           | Nose                      | Ovary                    |
| Pancreas                   | Pituitary Gland         | Salivary Glands           | Skin                     |
| Stomach - Forestomach      | Thymus                  | Thyroid Gland             | Trachea                  |
| Urinary Bladder            | Uterus                  |                           |                          |

**OBSERVATIONS**

|                                    |              |                            |                     |
|------------------------------------|--------------|----------------------------|---------------------|
| Clitoral Gl                        |              |                            |                     |
| Note: DISTENDED                    |              |                            |                     |
| Heart                              |              | Cardiomyopathy             | Mild                |
| Kidney                             |              | Nephropathy                | Minimal             |
|                                    | Renal Tubule | Pigmentation               | Minimal             |
| Liver                              |              | Basophilic Focus           |                     |
|                                    |              | Clear Cell Focus           |                     |
|                                    |              | Hepatodiaphragmatic Nodule |                     |
|                                    |              | Pigmentation               | Mild                |
| Note: ANOM HEPAT LOB    TGLs = 6-3 |              |                            |                     |
| Lung                               |              | Infiltration Cellular      | Histiocyte, Minimal |
|                                    |              | Pigmentation               | Minimal             |
| Lymph Node                         | Mediastinal  | Infiltration Cellular      | Histiocyte, Mild    |
|                                    | Mesenteric   | Infiltration Cellular      | Histiocyte, Mild    |
|                                    | Pancreatic   | Infiltration Cellular      | Histiocyte, Mild    |
|                                    | Mediastinal  | Pigmentation               | Mild                |
|                                    | Mesenteric   | Pigmentation               | Mild                |
|                                    | Pancreatic   | Pigmentation               | Moderate            |
| Note: INFILTRAT CELL    TGLs = 4-9 |              |                            |                     |
| Parathyroid Gland                  |              | Hyperplasia                | Mild                |
| Spleen                             |              | Infiltration Cellular      | Histiocyte, Minimal |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 185

**TRT#:** 6  
**DOSE:** 0.05 G/KG 79 HF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 748  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|         |           |              |                   |
|---------|-----------|--------------|-------------------|
| Stomach |           | Pigmentation | Hemosiderin, Mild |
|         |           | Pigmentation | Mild              |
|         | Glandular | Fibrosis     | Minimal           |
|         | Glandular | Metaplasia   | Minimal           |
|         | Glandular | Pigmentation | Minimal           |

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 188

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 232

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                     | Clitoral Gland          | Esophagus                | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Kidney                   | Lymph Node - Mandibular |
| Nose                      | Ovary                   | Pancreas                 | Salivary Glands         |
| Skin                      | Stomach - Forestomach   | Stomach - Glandular      | Thymus                  |
| Thyroid Gland             | Trachea                 | Urinary Bladder          | Uterus                  |

**MISSING**

|               |                   |
|---------------|-------------------|
| Mammary Gland | Parathyroid Gland |
|---------------|-------------------|

**OBSERVATIONS**

|                             |               |                                  |                        |
|-----------------------------|---------------|----------------------------------|------------------------|
| Intestine Small             | Duodenum      | Pigmentation                     | Minimal                |
| Liver                       |               | Basophilic Focus                 |                        |
|                             |               | Pigmentation                     | Minimal                |
| Lung                        |               | Edema                            | Mild                   |
|                             |               | Infiltration Cellular            | Histiocyte, Mild       |
|                             |               | Inflammation                     | Granulomatous, Minimal |
| [ Edema TGLS = 1-1+2 ]      |               |                                  |                        |
| Lymph Node                  | Mediastinal   | Congestion                       | Mild                   |
|                             | Mesenteric    | Pigmentation                     | Mild                   |
| Note: PIGMENT TGLs = 3-9    |               |                                  |                        |
| Note: CONGESTION TGLs = 2-2 |               |                                  |                        |
| Pituitary Gland             | Pars Distalis | Hyperplasia                      | Minimal                |
| Spleen                      |               | Hematopoietic Cell Proliferation | Mild                   |
|                             |               | Pigmentation                     | Hemosiderin, Minimal   |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 189

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Nose                       |
| Ovary                   | Pancreas                  | Pituitary Gland          | Salivary Glands            |
| Skin                    | Thyroid Gland             | Trachea                  | Urinary Bladder            |
| Uterus                  |                           |                          |                            |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|  |              |                                  |                     |
|--|--------------|----------------------------------|---------------------|
| Kidney                                 |              | Nephropathy                      | Mild                |
|  | Renal Tubule | Pigmentation                     | Mild                |
| Liver                                  |              | Basophilic Focus                 |                     |
|  |              | Inflammation                     | Granulomatous, Mild |
|  |              | Mixed Cell Focus                 |                     |
|  |              | Pigmentation                     | Mild                |
| Note: MIXED CL FOCUS TGLs = 3-3        |              |                                  |                     |
| Lung                                   |              | Infiltration Cellular            | Histiocyte, Mild    |
|  |              | Inflammation                     | Granulomatous, Mild |
| [ Infiltration Cellular TGLS = 2-1+2 ] |              |                                  |                     |
| Lymph Node                             | Mediastinal  | Infiltration Cellular            | Histiocyte, Mild    |
|  | Mesenteric   | Infiltration Cellular            | Histiocyte, Mild    |
|  | Mandibular   | Pigmentation                     | Mild                |
|  | Mediastinal  | Pigmentation                     | Minimal             |
|  | Mesenteric   | Pigmentation                     | Mild                |
| Note: INFILTRAT CELL TGLs = 4-8        |              |                                  |                     |
| Mammary Gland                          |              | Fibroadenoma                     |                     |
| Note: FIBROADENOMA TGLs = 1-13         |              |                                  |                     |
| Spleen                                 |              | Hematopoietic Cell Proliferation | Mild                |
|  |              | Infiltration Cellular            | Histiocyte, Mild    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 189

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 748

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |             |               |                   |
|------------------------|-------------|---------------|-------------------|
|                        |             | Pigmentation  | Mild              |
|                        |             | Pigmentation  | Hemosiderin, Mild |
| Stomach                | Forestomach | Acanthosis    | Mild              |
|                        | Glandular   | Fibrosis      | Mild              |
|                        | Glandular   | Metaplasia    | Minimal           |
|                        | Glandular   | Pigmentation  | Minimal           |
|                        | Fat         | Proliferation | Moderate          |
| Thymus                 |             | Pigmentation  | Minimal           |
| PRIMARY CAUSE OF DEATH | -           |               |                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 190

TRT#: 6

SEX: Female

DAY ON TEST: 617

DOSE: 0.05 G/KG 79 HF

DISP: Dead

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Lymph Node - Mandibular  
Parathyroid Gland  
Stomach - Forestomach  
Urinary Bladder

Adrenal Gland - Medulla  
Esophagus  
Intestine Small - Ileum  
Lymph Node - Mesenteric  
Salivary Glands  
Thymus  
Uterus

Bone  
Heart  
Islets, Pancreatic  
Nose  
Skin  
Thyroid Gland

Bone Marrow  
Intestine Large - Cecum  
Kidney  
Ovary  
Spleen  
Trachea

MISSING

Clitoral Gland

AUTO PRECLUDES DIAG.

Intestine Large - Rectum

Intestine Small - Duodenum

Intestine Small - Jejunum

OBSERVATIONS

Liver  
  
Lung  
  
Mammary Gland  
Note: FIBROADENOMA TGLs = 1-13  
Pancreas  
Pituitary Gland  
Note: [ HYPERPLASIA ] TGLs = 2-8  
Stomach

Alveolar Epith  
  
  
Acinus  
Pars Distalis  
  
Glandular

Basophilic Focus  
Fatty Change  
Necrosis  
Hyperplasia  
Infiltration Cellular  
Fibroadenoma  
  
Hyperplasia  
Hyperplasia  
  
Fibrosis

Focal, Minimal  
Minimal  
Mild  
Histiocyte, Minimal  
  
Mild  
Mild  
  
Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 191

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Esophagus                  | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Pituitary Gland         |
| Salivary Glands           | Skin                     | Thyroid Gland              | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

**OBSERVATIONS**

|                                 |                |                                  |                        |
|---------------------------------|----------------|----------------------------------|------------------------|
| Heart                           |                | Cardiomyopathy                   | Mild                   |
| Kidney                          | Renal Tubule   | Pigmentation                     | Minimal                |
| Liver                           |                | Basophilic Focus                 |                        |
|                                 |                | Fatty Change                     | Focal, Minimal         |
|                                 |                | Inflammation                     | Granulomatous, Minimal |
|                                 |                | Pigmentation                     | Mild                   |
| Note: PIGMENT TGLs = 6-3        |                |                                  |                        |
| Lung                            | Alveolar Epith | Hyperplasia                      | Mild                   |
|                                 |                | Infiltration Cellular            | Histiocyte, Minimal    |
|                                 |                | Pigmentation                     | Minimal                |
| Lymph Node                      | Mandibular     | Infiltration Cellular            | Histiocyte, Minimal    |
|                                 | Mediastinal    | Infiltration Cellular            | Histiocyte, Mild       |
|                                 | Mesenteric     | Infiltration Cellular            | Histiocyte, Mild       |
|                                 | Pancreatic     | Infiltration Cellular            | Histiocyte, Minimal    |
|                                 | Mandibular     | Pigmentation                     | Minimal                |
|                                 | Mediastinal    | Pigmentation                     | Minimal                |
|                                 | Mesenteric     | Pigmentation                     | Mild                   |
|                                 | Pancreatic     | Pigmentation                     | Minimal                |
| Note: INFILTRAT CELL TGLs = 4-9 |                |                                  |                        |
| Mesentery                       | Fat            | Necrosis                         | Marked                 |
| [ Necrosis TGLS = 3-3.1 ]       |                |                                  |                        |
| Spleen                          |                | Hematopoietic Cell Proliferation | Moderate               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 191

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: MEGAKARYOCYTES INCREASED

[ Hematopoietic Cell Proliferation TGLS = 5-3.1 ]

|         |             |                |               |
|---------|-------------|----------------|---------------|
| Stomach | Forestomach | Acanthosis     | Mild          |
|         | Glandular   | Fibrosis       | Mild          |
|         | Forestomach | Hyperkeratosis | Mild          |
|         | Glandular   | Metaplasia     | Minimal       |
|         | Fat         | Proliferation  | Marked        |
| Thymus  |             | Pigmentation   | Minimal       |
| Uterus  |             | Hemorrhage     | Moderate      |
|         | Endometrium | Hyperplasia    | Mild          |
|         |             | Inflammation   | Acute, Marked |
|         |             | Polyp Stromal  |               |

Note: INFLAMMATION TGLs = 2-6

Note: HYPERPLASIA TGLs = 1-6.1

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 192

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Medulla   | Bone                    | Bone Marrow              | Brain                   |
| Clitoral Gland            | Esophagus               | Eye                      | Harderian Gland         |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Ovary                    | Parathyroid Gland       |
| Salivary Glands           | Skin                    | Stomach - Forestomach    | Thyroid Gland           |
| Trachea                   | Urinary Bladder         |                          |                         |

**OBSERVATIONS**

|                                      |              |                        |                  |
|--------------------------------------|--------------|------------------------|------------------|
| Adrenal Gland                        | Cortex       | Leukemia Mononuclear   |                  |
| Heart                                |              | Cardiomyopathy         | Mild             |
|                                      |              | Leukemia Mononuclear   |                  |
| Intestine Small                      | Duodenum     | Pigmentation           | Minimal          |
| Kidney                               |              | Nephropathy            | Minimal          |
|                                      | Renal Tubule | Pigmentation           | Mild             |
| Liver                                |              | Basophilic Focus       |                  |
|                                      |              | Hepatocellular Adenoma |                  |
|                                      |              | Leukemia Mononuclear   |                  |
|                                      |              | Pigmentation           | Minimal          |
| Note: [ HEPATOCLR ADEN ] TGLs = 11-3 |              |                        |                  |
| Lung                                 |              | Hemorrhage             | Moderate         |
|                                      |              | Infiltration Cellular  | Histiocyte, Mild |
|                                      |              | Leukemia Mononuclear   |                  |
|                                      |              | Pigmentation           | Minimal          |
| Note: HEMORRHAGE TGLs = 5-2          |              |                        |                  |
| Note: INFILTRAT CELL TGLs = 4-1+2    |              |                        |                  |
| Note: LEUKEMIA MONUC TGLs = 3-1+2    |              |                        |                  |
| Lymph Node                           | Mesenteric   | Infiltration Cellular  | Histiocyte, Mild |
|                                      | Pancreatic   | Infiltration Cellular  | Histiocyte, Mild |
|                                      | Mandibular   | Leukemia Mononuclear   |                  |
|                                      | Pancreatic   | Leukemia Mononuclear   |                  |
|                                      | Mesenteric   | Pigmentation           | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 192      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 743  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                        |               |                      |                |
|------------------------|---------------|----------------------|----------------|
|                        | Pancreatic    | Pigmentation         | Mild           |
| Note: PIGMENT          | TGLs = 9-9    |                      |                |
| Note: LEUKEMIA MONUC   | TGLs = 7-9    |                      |                |
| Mammary Gland          |               | Fibroadenoma         |                |
| Note: FIBROADENOMA     | TGLs = 2-14   |                      |                |
| Nose                   |               | Inflammation         | Acute, Minimal |
| Pancreas               |               | Leukemia Mononuclear |                |
| Pituitary Gland        | Pars Distalis | Adenoma              |                |
|                        | Pars Distalis | Angiectasis          | Mild           |
| Note: ADENOMA          | TGLs = 12-8   |                      |                |
| Spleen                 |               | Leukemia Mononuclear |                |
| [ Leukemia Mononuclear | TGLS = 6-3 ]  |                      |                |
| Stomach                | Glandular     | Fibrosis             | Moderate       |
|                        | Glandular     | Metaplasia           | Mild           |
|                        | Fat           | Proliferation        | Marked         |
| Thymus                 |               | Leukemia Mononuclear |                |
|                        |               | Pigmentation         | Minimal        |
| Uterus                 | Cervix        | Sarcoma              |                |
| Note: [ SARCOMA        | ] TGLs = 8-6  |                      |                |
| PRIMARY CAUSE OF DEATH | -             |                      |                |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 193

TRT#: 6

SEX: Female

DAY ON TEST: 493

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Lung                       |
| Mammary Gland           | Nose                      | Ovary                    | Pancreas                   |
| Parathyroid Gland       | Salivary Glands           | Skin                     | Stomach - Forestomach      |
| Thymus                  | Thyroid Gland             | Trachea                  | Urinary Bladder            |

OBSERVATIONS

|   |               |                                  |                     |
|---|---------------|----------------------------------|---------------------|
| Kidney  | Renal Tubule  | Pigmentation                     | Minimal             |
| Liver   |               | Abscess                          | Moderate            |
| Note: PIGMENT IN PORTAL RADICLES                    |               |                                  |                     |
| Note: ABSCESS TGLs = 2-3                            |               |                                  |                     |
| Lymph Node  | Mandibular    | Infiltration Cellular            | Histiocyte, Minimal |
|   | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|   | Mesenteric    | Pigmentation                     | Mild                |
| Pituitary Gland                                     | Pars Distalis | Angiectasis                      | Mild                |
|   | Pars Distalis | Hyperplasia                      | Mild                |
| Note: [ HYPERPLASIA ] TGLs = 3-8                    |               |                                  |                     |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild                |
|   |               | Infiltration Cellular            | Histiocyte, Mild    |
| Stomach   | Glandular     | Erosion                          | Minimal             |
|   | Glandular     | Fibrosis                         | Mild                |
|   | Glandular     | Hyperplasia                      | Mild                |
|   | Glandular     | Inflammation                     | Acute, Minimal      |
|   | Glandular     | Metaplasia                       | Minimal             |
|   | Glandular     | Pigmentation                     | Minimal             |
|   | Fat           | Proliferation                    | Mild                |
| Note: HYPERPLASIA TGLs = 4-7                        |               |                                  |                     |
| Note: LYMPHOCYTIC CLUSTER AND INTESTINAL METAPLASIA |               |                                  |                     |
| Uterus  |               | Polyp Stromal                    |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 193

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 493

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: POLYP STROMAL TGLs = 1-6

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:29  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

**ANIMAL ID:** 194      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 749  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Kidney                   | Mammary Gland           | Nose                      |
| Ovary                   | Pancreas                 | Parathyroid Gland       | Pituitary Gland           |
| Salivary Glands         | Skin                     | Thyroid Gland           | Trachea                   |
| Urinary Bladder         |                          |                         |                           |

**OBSERVATIONS**

|   |             |                                  |                     |
|---|-------------|----------------------------------|---------------------|
| Bone Marrow                                 |             | Pigmentation                     | Minimal             |
| Intestine Small                             | Duodenum    | Pigmentation                     | Minimal             |
| Liver                                       |             | Basophilic Focus                 |                     |
|   |             | Inflammation                     | Granulomatous, Mild |
|   |             | Pigmentation                     | Mild                |
| Lung  |             | Infiltration Cellular            | Histiocyte, Minimal |
|   |             | Pigmentation                     | Minimal             |
| Lymph Node                                  | Mandibular  | Infiltration Cellular            | Histiocyte, Minimal |
|   | Mesenteric  | Infiltration Cellular            | Histiocyte, Mild    |
|   | Mandibular  | Pigmentation                     | Minimal             |
|   | Mesenteric  | Pigmentation                     | Mild                |
| Spleen                                      |             | Hematopoietic Cell Proliferation | Minimal             |
|   |             | Infiltration Cellular            | Histiocyte, Minimal |
|   |             | Pigmentation                     | Hemosiderin, Mild   |
|   |             | Pigmentation                     | Mild                |
| Stomach                                     | Forestomach | Acanthosis                       | Mild                |
|   | Glandular   | Fibrosis                         | Mild                |
|   | Glandular   | Hyperplasia                      | Minimal             |
|   | Glandular   | Metaplasia                       | Minimal             |
|   | Fat         | Proliferation                    | Moderate            |
| Note: SUGGESTIVE OF SQUAMOUS CELL PAPILLOMA |             |                                  |                     |
| Thymus                                      |             | Pigmentation                     | Minimal             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 194

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Uterus

Polyp Stromal

Note: POLYP STROMAL TGLs = 1-6

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 195

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 665

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Lymph Node - Mandibular    | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Thyroid Gland            | Trachea                    | Urinary Bladder         |
| Uterus                    |                          |                            |                         |

**MISSING**

Clitoral Gland

**OBSERVATIONS**

|                                     |               |                            |                     |
|-------------------------------------|---------------|----------------------------|---------------------|
| Kidney                              | Renal Tubule  | Pigmentation               | Mild                |
| Liver                               |               | Basophilic Focus           |                     |
|                                     |               | Hepatodiaphragmatic Nodule |                     |
|                                     |               | Necrosis                   | Minimal             |
|                                     |               | Pigmentation               | Mild                |
| Note: ANOM HEPAT LOB TGLs = 10-3    |               |                            |                     |
| Lung                                |               | Infiltration Cellular      | Histiocyte, Minimal |
| Lymph Node                          | Mesenteric    | Angiectasis                | Mild                |
|                                     | Pancreatic    | Angiectasis                | Mild                |
|                                     | Mediastinal   | Infiltration Cellular      | Histiocyte, Mild    |
|                                     | Mesenteric    | Infiltration Cellular      | Histiocyte, Mild    |
|                                     | Pancreatic    | Infiltration Cellular      | Histiocyte, Mild    |
|                                     | Mediastinal   | Pigmentation               | Mild                |
|                                     | Mesenteric    | Pigmentation               | Mild                |
|                                     | Pancreatic    | Pigmentation               | Mild                |
| Note: INFILTRAT CELL TGLs = 6-8     |               |                            |                     |
| Mammary Gland                       |               | Fibroadenoma               | Multiple            |
|                                     |               | Galactocele                |                     |
| Note: FIBROADENOMA TGLs = 2-13,3-14 |               |                            |                     |
| Pituitary Gland                     | Pars Distalis | Angiectasis                | Moderate            |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

|                       |  |   |  |
|-----------------------|--|---|--|
| <b>ANIMAL ID:</b> 195 | <b>TRT#:</b> 6<br><b>DOSE:</b> 0.05 G/KG 79 HF | <b>SEX:</b> Female<br><b>DISP:</b> Moribund | <b>DAY ON TEST:</b> 665<br><b>HISTO:</b> |
|-----------------------|--|---|--|

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |               |  |   |
|--|---------------|--|---|
| Note: [ HYPERPLASIA ] TGLs = 11-8<br>Spleen  | Pars Distalis | Hyperplasia  | Moderate  |
|  |               | Hematopoietic Cell Proliferation<br>Infiltration Cellular<br>Pigmentation<br>Pigmentation<br>Sarcoma | Mild<br>Histiocyte, Mild<br>Mild<br>Hemosiderin, Mild |
| Note: AND HEMORRHAGE. THIS NEOPLASM HAS THE<br>Note: THICK FIBROUS CAPSULE, AREAS OF NECROSIS<br>Note: SARCOMA TGLs = 7-3.1+3.2+3.3+3.4+3.5<br>Note: FEATURES OF HEMANGIO- OR LYMPHANGIOSARCOMA<br>Stomach | Forestomach   | Acanthosis   | Mild  |
|  | Glandular     | Fibrosis   | Mild  |
|  | Forestomach   | Hyperkeratosis   | Mild  |
|  | Glandular     | Hyperplasia  | Minimal   |
|  | Glandular     | Metaplasia   | Minimal   |
|  | Fat           | Proliferation  | Moderate  |
|  | Thymus        | Pigmentation   | Minimal   |
| PRIMARY CAUSE OF DEATH   | -             |  |   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 196

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 521

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone Marrow             | Brain                     |
| Clitoral Gland           | Heart                      | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Lymph Node - Mandibular    | Mammary Gland           | Nose                      |
| Ovary                    | Pancreas                   | Parathyroid Gland       | Salivary Glands           |
| Skin                     | Stomach - Forestomach      | Thymus                  | Thyroid Gland             |
| Trachea                  | Urinary Bladder            |                         |                           |

**MISSING**

Esophagus

**OBSERVATIONS**

|                                  |               |                                  |                     |
|----------------------------------|---------------|----------------------------------|---------------------|
| Bone                             |               | Hyperplasia                      | Mild                |
|                                  |               | Necrosis                         | Mild                |
| Ear                              |               | Inflammation                     | Acute, Moderate     |
| Kidney                           |               | Nephropathy                      | Minimal             |
|                                  | Renal Tubule  | Pigmentation                     | Minimal             |
| Liver                            |               | Basophilic Focus                 |                     |
|                                  |               | Fatty Change                     | Diffuse, Mild       |
| Note: PIGMENT IN PORTAL RADICLES |               |                                  |                     |
| Lung                             |               | Infiltration Cellular            | Histiocyte, Minimal |
| Lymph Node                       | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild    |
|                                  | Mesenteric    | Pigmentation                     | Mild                |
| Pituitary Gland                  | Pars Distalis | Angiectasis                      | Mild                |
|                                  | Pars Distalis | Hyperplasia                      | Mild                |
| Spleen                           |               | Hematopoietic Cell Proliferation | Mild                |
|                                  |               | Infiltration Cellular            | Histiocyte, Mild    |
| Stomach                          | Glandular     | Fibrosis                         | Moderate            |
|                                  | Glandular     | Hyperplasia                      | Mild                |
|                                  | Glandular     | Inflammation                     | Acute, Minimal      |
|                                  | Glandular     | Metaplasia                       | Minimal             |
|                                  | Fat           | Proliferation                    | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 196

**TRT#:** 6  
**DOSE:** 0.05 G/KG 79 HF

**SEX:** Female  
**DISP:** Moribund

**DAY ON TEST:** 521  
**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |        |              |             |
|---|--------|--------------|-------------|
| Uterus<br>Note: INFLAMMATION TGLs = 2-6 | Cervix | Inflammation | Acute, Mild |
|---|--------|--------------|-------------|

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 197      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 653  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Dead      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |               |                         |
|--------------------------|-------------------------|---------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone          | Bone Marrow             |
| Brain                    | Clitoral Gland          | Esophagus     | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Mammary Gland | Ovary                   |
| Parathyroid Gland        | Salivary Glands         | Skin          | Stomach - Forestomach   |
| Trachea                  | Urinary Bladder         |               |                         |

**MISSING**

|                    |          |
|--------------------|----------|
| Islets, Pancreatic | Pancreas |
|--------------------|----------|

**AUTO PRECLUDES DIAG.**

|                         |                            |                           |
|-------------------------|----------------------------|---------------------------|
| Intestine Large - Cecum | Intestine Small - Duodenum | Intestine Small - Jejunum |
|-------------------------|----------------------------|---------------------------|

**OBSERVATIONS**

|                                  |               |                       |                     |
|----------------------------------|---------------|-----------------------|---------------------|
| Heart                            |               | Cardiomyopathy        | Mild                |
| Kidney                           |               | Nephropathy           | Mild                |
| Liver                            |               | Basophilic Focus      |                     |
|                                  |               | Pigmentation          | Minimal             |
| Lung                             |               | Pigmentation          | Minimal             |
| Lymph Node                       | Mandibular    | Infiltration Cellular | Histiocyte, Minimal |
|                                  | Mesenteric    | Infiltration Cellular | Histiocyte, Mild    |
|                                  | Mandibular    | Pigmentation          | Minimal             |
|                                  | Mesenteric    | Pigmentation          | Mild                |
| Nose                             |               | Inflammation          | Acute, Mild         |
| Pituitary Gland                  | Pars Distalis | Angiectasis           | Mild                |
|                                  | Pars Distalis | Hyperplasia           | Mild                |
| Note: [ HYPERPLASIA ] TGLs = 3-8 |               |                       |                     |
| Spleen                           |               | Infiltration Cellular | Histiocyte, Mild    |
|                                  |               | Pigmentation          | Hemosiderin, Mild   |
|                                  |               | Pigmentation          | Mild                |
| Stomach                          | Glandular     | Fibrosis              | Mild                |
| Thymus                           |               | Pigmentation          | Minimal             |
| Thyroid Gland                    | C Cell        | Adenoma               |                     |
| Uterus                           |               | Polyp Stromal         |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01

**Test Type:** CHRONIC

**Route:** GAVAGE

**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Titanocene dichloride

**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014

**Time Report Requested:** 06:16:29

**First Dose M/F:** NA / NA

**Lab:** TSI MASON

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**ANIMAL ID:** 197

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 653

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Note: POLYP STROMAL TGLs = 2-6.1+6.2

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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 198

TRT#: 6

SEX: Female

DAY ON TEST: 683

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Ovary                   | Parathyroid Gland         | Pituitary Gland          | Salivary Glands            |
| Skin                    | Urinary Bladder           | Uterus                   |                            |

OBSERVATIONS

|  |             |                       |                  |
|--|-------------|-----------------------|------------------|
| Eye                                    |             | Synechia              | Mild             |
| Note: SYNECHIA                         | TGLs = 1-14 |                       |                  |
| Harderian Gland                        |             | Pigmentation          | Mild             |
| Note: PIGMENT DIFFERENT FROM PORPHYRIN |             |                       |                  |
| Kidney                                 | Cortex      | Mineralization        | Minimal          |
| Liver                                  |             | Basophilic Focus      |                  |
|  |             | Fatty Change          | Focal, Mild      |
|  |             | Leukemia Mononuclear  |                  |
|  |             | Pigmentation          | Mild             |
| Lung                                   |             | Edema                 | Mild             |
|  |             | Hemorrhage            | Minimal          |
|  |             | Inflammation          | Acute, Moderate  |
| Note: MORE LIKE BRONCHOPNEUMONIA       |             |                       |                  |
| Lymph Node                             | Mediastinal | Infiltration Cellular | Histiocyte, Mild |
|  | Mesenteric  | Infiltration Cellular | Histiocyte, Mild |
|  | Mandibular  | Pigmentation          | Minimal          |
|  | Mediastinal | Pigmentation          | Minimal          |
|  | Mesenteric  | Pigmentation          | Mild             |
| Note: INFILTRAT CELL                   | TGLs = 4-8  |                       |                  |
| Nose                                   |             | Inflammation          | Acute, Moderate  |
| Note: SUPPURATIVE RHINITIS             |             |                       |                  |
| Note: INFLAMMATION                     | TGLs = 2-12 |                       |                  |
| Pancreas                               |             | Fibrosis              | Mild             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 198

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 683

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|   |                |   |  |
|---|----------------|---|--|
| Spleen                                  |                | Inflammation<br>Angiectasis<br>Hematopoietic Cell Proliferation<br>Leukemia Mononuclear | Chronic Active, Moderate<br>Mild<br>Moderate |
| Note: MORE LIKE LEUKEMOID REACTION      |                |   |  |
| Note: HEMA CELL PROL TGLs = 3-3.1       |                |   |  |
| Stomach                                 | Forestomach    | Acanthosis  | Mild   |
|   | Glandular      | Erosion   | Minimal                                      |
|   | Glandular      | Hemorrhage  | Minimal                                      |
|   | Forestomach    | Hyperkeratosis  | Mild   |
|   | Glandular      | Hyperplasia   | Minimal                                      |
|   | Glandular      | Metaplasia  | Mild   |
|   | Glandular      | Pigmentation  | Minimal                                      |
|   | Fat            | Proliferation   | Marked                                       |
| Thymus                                  |                | Pigmentation  | Minimal                                      |
| Thyroid Gland                           | C Cell         | Hyperplasia   | Minimal                                      |
|   | Follicular Cel | Hyperplasia   | Minimal                                      |
| Note: PAPILLARY INGROWTHS IN A FOLLICLE |                |   |  |
| Trachea                                 |                | Erosion<br>Inflammation<br>Metaplasia   | Minimal<br>Acute, Mild<br>Squamous, Minimal  |

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:29  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 199

TRT#: 6

SEX: Female

DAY ON TEST: 673

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                          |                         |                         |
|-------------------------|--------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                   |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      |
| Mammary Gland           | Nose                     | Ovary                   | Pancreas                |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Trachea                 |
| Urinary Bladder         | Uterus                   |                         |                         |

MISSING

Bone Marrow

OBSERVATIONS

|   |              |                       |                        |
|---|--------------|-----------------------|------------------------|
| Brain                                       |              |                       |                        |
| Note: BRAIN INDENTED BY THE PITUITARY TUMOR |              |                       |                        |
| Eye   | Lens         | Cataract              | Moderate               |
|   |              | Hemorrhage            | Moderate               |
| Note: HEMORRHAGE TGLs = 2-13                |              |                       |                        |
| Intestine Small                             | Duodenum     | Pigmentation          | Minimal                |
|   | Jejunum      | Pigmentation          | Minimal                |
| Kidney                                      |              | Nephropathy           | Minimal                |
|   | Renal Tubule | Pigmentation          | Minimal                |
| Liver                                       |              | Basophilic Focus      |                        |
|   |              | Fatty Change          | Diffuse, Minimal       |
|   |              | Inflammation          | Granulomatous, Minimal |
|   |              | Pigmentation          | Minimal                |
| Lung  |              | Infiltration Cellular | Histiocyte, Minimal    |
|   |              | Pigmentation          | Minimal                |
| Lymph Node                                  | Mandibular   | Infiltration Cellular | Histiocyte, Mild       |
|   | Mediastinal  | Infiltration Cellular | Histiocyte, Minimal    |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Mild       |
|   | Mandibular   | Pigmentation          | Mild                   |
|   | Mediastinal  | Pigmentation          | Minimal                |
|   | Mesenteric   | Pigmentation          | Moderate               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 199 | <b>TRT#:</b> 6               | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 673 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                 |               |                       |                   |
|-----------------|---------------|-----------------------|-------------------|
| Pituitary Gland | Pars Distalis | Adenoma               |                   |
|                 | Pars Distalis | Angiectasis           | Moderate          |
| Note: ADENOMA   | TGLs = 5-8    |                       |                   |
| Spleen          |               | Infiltration Cellular | Histiocyte, Mild  |
|                 |               | Pigmentation          | Hemosiderin, Mild |
|                 |               | Pigmentation          | Mild              |
| Stomach         | Forestomach   | Acanthosis            | Mild              |
|                 | Glandular     | Fibrosis              | Mild              |
|                 | Forestomach   | Hyperkeratosis        | Mild              |
|                 | Glandular     | Metaplasia            | Mild              |
|                 | Fat           | Proliferation         | Moderate          |
| Thymus          |               | Pigmentation          | Minimal           |
| Thyroid Gland   | C Cell        | Hyperplasia           | Mild              |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 200

TRT#: 6

SEX: Female

DAY ON TEST: 744

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                          |                            |
|-------------------------|---------------------------|--------------------------|----------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                     | Bone Marrow                |
| Brain                   | Clitoral Gland            | Esophagus                | Heart                      |
| Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              |
| Nose                    | Ovary                     | Pancreas                 | Parathyroid Gland          |
| Skin                    | Trachea                   | Urinary Bladder          |                            |

OBSERVATIONS

|  |              |                       |                             |
|--|--------------|-----------------------|-----------------------------|
| Ear                                    | Canal        | Abscess               | Marked                      |
| Eye                                    |              | Inflammation          | Acute, Marked               |
| Note: INFLAMMATION TGLs = 1-14         |              |                       |                             |
| Note: MORE LIKE PANOPHTHALMITIS        |              |                       |                             |
| Harderian Gland                        |              | Pigmentation          | Mild                        |
| Note: PIGMENT DIFFERENT FROM PORPHYRIN |              |                       |                             |
| Kidney                                 | Papilla      | Mineralization        | Minimal                     |
|  | Renal Tubule | Pigmentation          | Minimal                     |
| Liver                                  |              | Basophilic Focus      |                             |
|  |              | Fatty Change          | Focal, Minimal              |
|  |              | Inflammation          | Granulomatous, Minimal      |
|  |              | Leukemia Mononuclear  |                             |
|  |              | Necrosis              | Minimal                     |
|  |              | Pigmentation          | Mild                        |
| Lung                                   |              | Carcinoma             | Metastatic (Zymbal'S Gland) |
|  |              | Infiltration Cellular | Histiocyte, Mild            |
|  |              | Inflammation          | Acute, Moderate             |
|  |              | Pigmentation          | Minimal                     |
| Note: INFILTRAT CELL TGLs = 9-1        |              |                       |                             |
| Lymph Node                             | Mesenteric   | Infiltration Cellular | Histiocyte, Mild            |
|  | Mandibular   | Pigmentation          | Minimal                     |
|  | Mesenteric   | Pigmentation          | Mild                        |
| Note: INFILTRAT CELL TGLs = 12-8       |              |                       |                             |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 200      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 744  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|                                     |               |                                  |                      |
|-------------------------------------|---------------|----------------------------------|----------------------|
| Pituitary Gland                     | Pars Distalis | Adenoma                          |                      |
| Note: ADENOMA      TGLs = 5-8       |               |                                  |                      |
| Salivary Glands                     |               | Inflammation                     | Chronic Active, Mild |
| Spleen                              |               | Hematopoietic Cell Proliferation | Moderate             |
|                                     |               | Leukemia Mononuclear             |                      |
|                                     |               | Pigmentation                     | Hemosiderin, Mild    |
|                                     |               | Pigmentation                     | Minimal              |
| Note: MORE LIKE LEUKEMOID REACTION  |               |                                  |                      |
| Stomach                             | Forestomach   | Acanthosis                       | Mild                 |
|                                     | Glandular     | Fibrosis                         | Mild                 |
|                                     | Forestomach   | Hyperkeratosis                   | Mild                 |
|                                     | Glandular     | Hyperplasia                      | Mild                 |
|                                     | Glandular     | Metaplasia                       | Minimal              |
|                                     | Glandular     | Pigmentation                     | Minimal              |
|                                     | Fat           | Proliferation                    | Minimal              |
| Note: ACANTHOSIS      TGLs = 13-7   |               |                                  |                      |
| Thymus                              |               | Pigmentation                     | Minimal              |
| Thyroid Gland                       | C Cell        | Adenoma                          |                      |
|                                     | C Cell        | Hyperplasia                      | Minimal              |
| Uterus                              |               | Hemorrhage                       | Marked               |
|                                     |               | Thrombosis                       | Moderate             |
| Note: HEMORRHAGE      TGLs = 7-6    |               |                                  |                      |
| Zymbal's Gland                      |               | Carcinoma                        |                      |
| Note: SQUAMOUS CELL CARCINOMA       |               |                                  |                      |
| Note: CARCINOMA      TGLs = 3-13+15 |               |                                  |                      |

**PRIMARY CAUSE OF DEATH**      -

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 201

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Lymph Node - Mandibular  | Mammary Gland           | Nose                      |
| Ovary                   | Pancreas                 | Parathyroid Gland       | Salivary Glands           |
| Skin                    | Trachea                  | Urinary Bladder         | Uterus                    |

**OBSERVATIONS**

|   |               |                                  |                        |
|---|---------------|----------------------------------|------------------------|
| Bone Marrow   |               | Pigmentation                     | Minimal                |
| Intestine Small   | Duodenum      | Pigmentation                     | Minimal                |
| Kidney  | Cortex        | Mineralization                   | Minimal                |
|   |               | Nephropathy                      | Mild                   |
|   | Renal Tubule  | Pigmentation                     | Minimal                |
| Liver   |               | Basophilic Focus                 |                        |
|   |               | Clear Cell Focus                 |                        |
|   |               | Inflammation                     | Granulomatous, Minimal |
|   |               | Pigmentation                     | Minimal                |
| Note: A FEW ABNORMAL MITOTIC FIGURES IN THE SECTION CIRCLED |               |                                  |                        |
| Lung  |               | Alveolar/Bronchiolar Adenoma     |                        |
|   |               | Infiltration Cellular            | Histiocyte, Minimal    |
|   |               | Pigmentation                     | Minimal                |
| Note: ALV BRON ADEN TGLs = 6-1                              |               |                                  |                        |
| Lymph Node  | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal    |
|   | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild       |
|   | Mediastinal   | Pigmentation                     | Minimal                |
|   | Mesenteric    | Pigmentation                     | Mild                   |
| Pituitary Gland   | Pars Distalis | Adenoma                          |                        |
|   | Pars Distalis | Angiectasis                      | Mild                   |
|   | Pars Distalis | Hyperplasia                      | Mild                   |
| Note: ADENOMA TGLs = 5-8                                    |               |                                  |                        |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 201 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 744 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |             |                       |                     |
|---------------|-------------|-----------------------|---------------------|
| Stomach       | Glandular   | Infiltration Cellular | Histiocyte, Minimal |
|               | Forestomach | Pigmentation          | Hemosiderin, Mild   |
|               | Glandular   | Pigmentation          | Mild                |
|               | Glandular   | Fibrosis              | Mild                |
|               | Fat         | Hyperkeratosis        | Mild                |
| Thymus        |             | Hyperplasia           | Mild                |
| Thyroid Gland |             | Metaplasia            | Minimal             |
|               |             | Proliferation         | Mild                |
|               |             | Pigmentation          | Minimal             |
|               | C Cell      | Adenoma               |                     |
|               | C Cell      | Hyperplasia           | Mild                |

Note: ADENOMA TGLs = 1-8

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 202

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Adrenal Gland - Medulla | Bone                      | Brain                    |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Lung                       | Mammary Gland           | Ovary                     | Pancreas                 |
| Parathyroid Gland          | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Trachea                    | Urinary Bladder         |                           |                          |

**OBSERVATIONS**

|                                 |               |                                  |                      |
|---------------------------------|---------------|----------------------------------|----------------------|
| Bone Marrow                     |               | Pigmentation                     | Minimal              |
| Clitoral Gland                  |               | Adenoma                          |                      |
| [ Adenoma TGLS = 1-10 ]         |               |                                  |                      |
| Heart                           |               | Cardiomyopathy                   | Mild                 |
| Kidney                          |               | Nephropathy                      | Minimal              |
|                                 | Renal Tubule  | Pigmentation                     | Mild                 |
| Liver                           |               | Basophilic Focus                 |                      |
|                                 |               | Inflammation                     | Granulomatous, Mild  |
|                                 |               | Pigmentation                     | Mild                 |
| Lymph Node                      | Mandibular    | Infiltration Cellular            | Histiocyte, Mild     |
|                                 | Mediastinal   | Infiltration Cellular            | Histiocyte, Minimal  |
|                                 | Mesenteric    | Infiltration Cellular            | Histiocyte, Moderate |
|                                 | Mandibular    | Pigmentation                     | Mild                 |
|                                 | Mediastinal   | Pigmentation                     | Minimal              |
|                                 | Mesenteric    | Pigmentation                     | Moderate             |
| Note: INFILTRAT CELL TGLs = 3-8 |               |                                  |                      |
| Nose                            |               | Inflammation                     | Acute, Mild          |
| Pituitary Gland                 | Pars Distalis | Adenoma                          |                      |
| Note: ADENOMA TGLs = 4-8        |               |                                  |                      |
| Spleen                          |               | Hematopoietic Cell Proliferation | Moderate             |
|                                 |               | Infiltration Cellular            | Histiocyte, Minimal  |
|                                 |               | Pigmentation                     | Mild                 |
|                                 |               | Pigmentation                     | Hemosiderin, Mild    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 202 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                               |           |               |          |
|-------------------------------|-----------|---------------|----------|
| Stomach                       | Glandular | Metaplasia    | Minimal  |
|                               | Fat       | Proliferation | Moderate |
| Thymus                        |           | Pigmentation  | Minimal  |
| Thyroid Gland                 | C Cell    | Adenoma       |          |
| Note: ADENOMA      TGLs = 2-8 |           |               |          |
| Uterus                        |           | Polyp Stromal |          |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 203

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                     | Clitoral Gland          | Esophagus                | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Lymph Node - Mandibular  | Nose                    |
| Ovary                     | Parathyroid Gland       | Salivary Glands          | Skin                    |
| Trachea                   | Urinary Bladder         | Uterus                   |                         |

**OBSERVATIONS**

|  |               |                       |                      |
|--|---------------|-----------------------|----------------------|
| Intestine Small  | Duodenum      | Pigmentation          | Minimal              |
| Kidney   |               | Nephropathy           | Mild                 |
|  | Renal Tubule  | Pigmentation          | Minimal              |
| Liver  |               | Basophilic Focus      |                      |
|  |               | Clear Cell Focus      |                      |
|  |               | Inflammation          | Granulomatous, Mild  |
|  |               | Pigmentation          | Minimal              |
| Note: BASOPH FOCUS TGLs = 5-3                          |               |                       |                      |
| Lung   |               | Infiltration Cellular | Histiocyte, Minimal  |
|  |               | Inflammation          | Acute, Mild          |
|  |               | Pigmentation          | Minimal              |
| Note: TALL BRONCHIAL EPITHELIUM, MUCINOUS MATERIAL AND |               |                       |                      |
| Note: INFLAMMATION TGLs = 3-2                          |               |                       |                      |
| Note: INFLAMMATORY CELLS IN BRONCHIOLES                |               |                       |                      |
| Lymph Node   | Mesenteric    | Infiltration Cellular | Histiocyte, Moderate |
|  | Mesenteric    | Pigmentation          | Moderate             |
| Mammary Gland  |               | Fibroadenoma          |                      |
|  |               | Galactocele           |                      |
| [ Galactocele TGLS = 2-13 ]                            |               |                       |                      |
| Pancreas   | Acinus        | Hyperplasia           | Mild                 |
| Pituitary Gland  | Pars Distalis | Adenoma               |                      |
|  | Pars Distalis | Angiectasis           | Mild                 |
| Note: ADENOMA TGLs = 6-8                               |               |                       |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 203 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                     |             |                                  |                     |
|-------------------------------------|-------------|----------------------------------|---------------------|
| Spleen                              |             | Hematopoietic Cell Proliferation | Mild                |
|                                     |             | Infiltration Cellular            | Histiocyte, Minimal |
|                                     |             | Pigmentation                     | Mild                |
|                                     |             | Pigmentation                     | Hemosiderin, Mild   |
| Stomach                             | Forestomach | Acanthosis                       | Moderate            |
|                                     | Forestomach | Hyperkeratosis                   | Mild                |
|                                     | Glandular   | Metaplasia                       | Minimal             |
|                                     | Glandular   | Pigmentation                     | Minimal             |
| Note: [ HYPERKERATOSIS ] TGLs = 7-7 |             |                                  |                     |
| Thymus                              |             | Pigmentation                     | Minimal             |
| Thyroid Gland                       | C Cell      | Hyperplasia                      | Minimal             |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 204

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 674

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Clitoral Gland           |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Ovary                   | Parathyroid Gland         | Skin                    | Stomach - Forestomach    |
| Stomach - Glandular     | Thyroid Gland             | Trachea                 | Uterus                   |

**OBSERVATIONS**

|                      |                    |                            |                     |
|----------------------|--------------------|----------------------------|---------------------|
| Adrenal Gland        | Medulla            | Hyperplasia                | Minimal             |
|                      | Cortex             | Leukemia Mononuclear       |                     |
|                      | Medulla            | Leukemia Mononuclear       |                     |
|                      | Bilateral, Medulla | Pheochromocytoma Benign    |                     |
| Heart                |                    | Leukemia Mononuclear       |                     |
| Intestine Small      | Duodenum           | Pigmentation               | Minimal             |
| Kidney               |                    | Leukemia Mononuclear       |                     |
|                      | Papilla            | Mineralization             | Minimal             |
|                      | Renal Tubule       | Pigmentation               | Mild                |
| Liver                |                    | Angiectasis                | Mild                |
|                      |                    | Fatty Change               | Focal, Mild         |
|                      |                    | Hepatodiaphragmatic Nodule |                     |
|                      |                    | Leukemia Mononuclear       |                     |
|                      |                    | Necrosis                   | Minimal             |
|                      |                    | Pigmentation               | Minimal             |
| Note: LEUKEMIA MONUC | TGLs = 7-3,8-3     |                            |                     |
| Note: ANOM HEPAT LOB | TGLs = 7-3         |                            |                     |
| Lung                 |                    | Infiltration Cellular      | Histiocyte, Minimal |
|                      |                    | Leukemia Mononuclear       |                     |
| Lymph Node           | Axillary           | Leukemia Mononuclear       |                     |
|                      | Mandibular         | Leukemia Mononuclear       |                     |
|                      | Mediastinal        | Leukemia Mononuclear       |                     |
|                      | Mesenteric         | Leukemia Mononuclear       |                     |
|                      | Pancreatic         | Leukemia Mononuclear       |                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 204 | <b>TRT#:</b> 6               | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 674 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |                     |                                  |                      |
|---|---------------------|----------------------------------|----------------------|
| Note: LEUKEMIA MONUC                              | TGLs = 4-2,3-9,10-8 |                                  |                      |
| Note: LEUKEMIA MONUC                              | TGLs = 12-9         |                                  |                      |
| Nose  |                     | Inflammation                     | Acute, Mild          |
| Pancreas  |                     | Leukemia Mononuclear             |                      |
| Pituitary Gland                                   | Pars Distalis       | Angiectasis                      | Mild                 |
|   | Pars Distalis       | Hyperplasia                      | Mild                 |
|   |                     | Leukemia Mononuclear             |                      |
| Note: ANGIECTASIS                                 | TGLs = 9-8          |                                  |                      |
| Salivary Glands                                   |                     | Leukemia Mononuclear             |                      |
| Spleen  |                     | Angiectasis                      | Mild                 |
|   |                     | Hematopoietic Cell Proliferation | Mild                 |
|   |                     | Leukemia Mononuclear             |                      |
|   |                     | Pigmentation                     | Hemosiderin, Minimal |
|   |                     | Pigmentation                     | Minimal              |
| [ Hematopoietic Cell Proliferation TGLS = 6-3.1 ] |                     |                                  |                      |
| [ Pigmentation TGLS = 5-3.1 ]                     |                     |                                  |                      |
| Thymus  |                     | Leukemia Mononuclear             |                      |
| Urinary Bladder                                   |                     | Leukemia Mononuclear             |                      |

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**PRIMARY CAUSE OF DEATH** -

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Animal Note: THE HEMOPOIETIC NEOPLASM LOOKS MORE LIKE  
Animal Note: LYMPHOCYTIC THAN MONONUCLEAR LEUKEMIA

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 207

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 345

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                         |                          |                         |
|---------------------------|-------------------------|--------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla | Bone                     | Bone Marrow             |
| Brain                     | Clitoral Gland          | Esophagus                | Heart                   |
| Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic      | Kidney                   | Lymph Node - Mandibular |
| Mammary Gland             | Nose                    | Ovary                    | Pancreas                |
| Parathyroid Gland         | Pituitary Gland         | Salivary Glands          | Skin                    |
| Stomach - Forestomach     | Thyroid Gland           | Trachea                  | Urinary Bladder         |
| Uterus                    |                         |                          |                         |

**OBSERVATIONS**

|  |              |                                  |                        |
|--|--------------|----------------------------------|------------------------|
| Intestine Small                        | Duodenum     | Pigmentation                     | Minimal                |
| Liver                                  |              | Basophilic Focus                 |                        |
|  |              | Inflammation                     | Granulomatous, Minimal |
|  |              | Pigmentation                     | Minimal                |
| Lung                                   |              | Atelectasis                      | Mild                   |
|  |              | Edema                            | Mild                   |
|  |              | Infiltration Cellular            | Histiocyte, Mild       |
|  |              | Inflammation                     | Granulomatous, Minimal |
|  |              | Pigmentation                     | Mild                   |
| Note: EDEMA                            | TGLs = 4-1+2 |                                  |                        |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES |              |                                  |                        |
| Lymph Node                             | Mediastinal  | Infiltration Cellular            | Histiocyte, Minimal    |
|  | Mediastinal  | Pigmentation                     | Minimal                |
|  | Mesenteric   | Pigmentation                     | Mild                   |
| [ Pigmentation TGLS = 3-2 ]            |              |                                  |                        |
| Spleen                                 |              | Hematopoietic Cell Proliferation | Mild                   |
|  |              | Pigmentation                     | Hemosiderin, Mild      |
| Note: PIGMENT                          | TGLs = 5-3   |                                  |                        |
| Stomach                                | Glandular    | Metaplasia                       | Minimal                |
|  | Glandular    | Pigmentation                     | Minimal                |
| Thymus                                 |              | Pigmentation                     | Minimal                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 207

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 345

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:29  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 208

TRT#: 6

SEX: Female

DAY ON TEST: 748

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Bone Marrow               | Brain                   |
| Clitoral Gland           | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular  | Nose                    | Ovary                     | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Trachea                   | Urinary Bladder         |

**OBSERVATIONS**

|  |            |                              |                        |
|--|------------|------------------------------|------------------------|
| Adrenal Gland                                | Medulla    | Hyperplasia                  | Minimal                |
| Heart  |            | Cardiomyopathy               | Mild                   |
| Intestine Small                              | Duodenum   | Pigmentation                 | Minimal                |
| Kidney                                       |            | Nephropathy                  | Moderate               |
| Note: NEPHROPATHY TGLs = 6-4                 |            |                              |                        |
| Liver  |            | Basophilic Focus             |                        |
|  |            | Fatty Change                 | Diffuse, Mild          |
|  |            | Hepatocellular Adenoma       |                        |
|  |            | Hepatodiaphragmatic Nodule   |                        |
|  |            | Inflammation                 | Granulomatous, Minimal |
|  |            | Pigmentation                 | Minimal                |
| Note: ANOM HEPAT LOB TGLs = 11-3.1           |            |                              |                        |
| Note: [ HEPATOCLR ADEN ] TGLs = 13-3         |            |                              |                        |
| Lung   |            | Alveolar/Bronchiolar Adenoma | Multiple               |
|  |            | Infiltration Cellular        | Histiocyte, Minimal    |
|  |            | Pigmentation                 | Minimal                |
| [ Infiltration Cellular TGLs = 3-1.1,4-2.1 ] |            |                              |                        |
| Lymph Node                                   | Mesenteric | Angiectasis                  | Moderate               |
|  | Pancreatic | Infiltration Cellular        | Histiocyte, Mild       |
|  | Mesenteric | Pigmentation                 | Minimal                |
|  | Pancreatic | Pigmentation                 | Moderate               |
| Note: INFILTRAT CELL TGLs = 7-13             |            |                              |                        |
| Note: MULTIPLE CYSTS                         |            |                              |                        |
| Mammary Gland                                |            | Fibroadenoma                 |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 208      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 748  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |                      |  |                                  |          |
|--|----------------------|--|----------------------------------|----------|
|  |                      |  | Galactocele                      |          |
| Note: FIBROADENOMA                               | TGLs = 1-13          |  |                                  |          |
| Pancreas   | Acinus               |  | Hyperplasia                      | Mild     |
| Pituitary Gland                                  | Pars Distalis        |  | Adenoma                          |          |
|  | Pars Distalis        |  | Angiectasis                      | Mild     |
| Note: ADENOMA                                    | TGLs = 14-8          |  |                                  |          |
| Spleen   |                      |  | Depletion Lymphoid               | Mild     |
|  |                      |  | Hematopoietic Cell Proliferation | Moderate |
| Stomach  | Forestomach          |  | Acanthosis                       | Minimal  |
|  | Glandular            |  | Fibrosis                         | Mild     |
|  | Forestomach          |  | Hyperkeratosis                   | Moderate |
|  | Glandular            |  | Metaplasia                       | Minimal  |
|  | Glandular            |  | Pigmentation                     | Minimal  |
|  | Fat                  |  | Proliferation                    | Mild     |
| Note: PROBABLY A PAPILOMA WITH THE STOCK CUT OFF |                      |  |                                  |          |
| Note: HYPERKERATOSIS                             | TGLs = 16-7          |  |                                  |          |
| Thymus   |                      |  | Pigmentation                     | Minimal  |
| Thyroid Gland                                    | C Cell               |  | Adenoma                          |          |
| Uterus   | Bilateral            |  | Polyp Stromal                    |          |
| Note: AN ACELLULAR NECROTIC MASS                 |                      |  |                                  |          |
| Note: POLYP STROMAL                              | TGLs = 9-6,10-6,15-6 |  |                                  |          |
| PRIMARY CAUSE OF DEATH                           | -                    |  |                                  |          |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01  
 Test Type: CHRONIC  
 Route: GAVAGE  
 Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Test Compound: Titanocene dichloride  
 CAS Number: 1271-19-8

Date Report Requested: 10/20/2014  
 Time Report Requested: 06:16:29  
 First Dose M/F: NA / NA  
 Lab: TSI MASON

ANIMAL ID: 209

TRT#: 6

SEX: Female

DAY ON TEST: 748

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla    | Bone                    | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Nose                    | Ovary                     |
| Parathyroid Gland        | Salivary Glands            | Skin                    | Stomach - Forestomach     |
| Thyroid Gland            | Trachea                    | Urinary Bladder         |                           |

**OBSERVATIONS**

|                                    |              |                       |                        |
|------------------------------------|--------------|-----------------------|------------------------|
| Bone Marrow                        |              | Pigmentation          | Minimal                |
| Heart                              |              | Cardiomyopathy        | Mild                   |
| Kidney                             |              | Nephropathy           | Minimal                |
|                                    | Renal Tubule | Pigmentation          | Mild                   |
| Liver                              |              | Basophilic Focus      |                        |
|                                    |              | Fatty Change          | Focal, Minimal         |
|                                    |              | Inflammation          | Granulomatous, Minimal |
|                                    |              | Pigmentation          | Minimal                |
| Lung                               |              | Infiltration Cellular | Histiocyte, Minimal    |
|                                    |              | Inflammation          | Acute, Minimal         |
|                                    |              | Pigmentation          | Minimal                |
|                                    |              | Pigmentation          | Cholesterol, Minimal   |
| Note: PROBABLY SQUAMOUS METAPLASIA |              |                       |                        |
| Lymph Node                         | Mandibular   | Infiltration Cellular | Histiocyte, Minimal    |
|                                    | Mediastinal  | Infiltration Cellular | Histiocyte, Minimal    |
|                                    | Mesenteric   | Infiltration Cellular | Histiocyte, Mild       |
|                                    | Pancreatic   | Infiltration Cellular | Histiocyte, Mild       |
|                                    | Mandibular   | Pigmentation          | Minimal                |
|                                    | Mediastinal  | Pigmentation          | Minimal                |
|                                    | Mesenteric   | Pigmentation          | Mild                   |
|                                    | Pancreatic   | Pigmentation          | Moderate               |
| Mesentery                          | Fat          | Necrosis              | Moderate               |

Note: NECROSIS TGLs = 1-3

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 209 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 748 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                  |               |                                  |                     |
|----------------------------------|---------------|----------------------------------|---------------------|
| Pancreas                         | Acinus        | Hyperplasia                      | Mild                |
| Pituitary Gland                  | Pars Distalis | Angiectasis                      | Mild                |
|                                  | Pars Distalis | Hyperplasia                      | Mild                |
| Note: [ HYPERPLASIA ] TGLs = 2-8 |               |                                  |                     |
| Spleen                           |               | Hematopoietic Cell Proliferation | Minimal             |
|                                  |               | Infiltration Cellular            | Histiocyte, Minimal |
|                                  |               | Leukemia Mononuclear             |                     |
|                                  |               | Pigmentation                     | Hemosiderin, Mild   |
|                                  |               | Pigmentation                     | Mild                |
| Stomach                          | Glandular     | Fibrosis                         | Mild                |
|                                  | Glandular     | Metaplasia                       | Minimal             |
|                                  | Fat           | Proliferation                    | Mild                |
| Thymus                           |               | Pigmentation                     | Minimal             |
| Uterus                           |               | Polyp Stromal                    |                     |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 210

TRT#: 6

SEX: Female

DAY ON TEST: 693

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                         |                         |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Clitoral Gland          | Esophagus               |
| Harderian Gland          | Heart                   | Intestine Large - Cecum | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      | Mesentery               |
| Ovary                    | Pancreas                | Parathyroid Gland       | Salivary Glands         |
| Skin                     | Stomach - Forestomach   | Trachea                 | Urinary Bladder         |
| Uterus                   |                         |                         |                         |

OBSERVATIONS

|                                    |              |                            |                        |
|------------------------------------|--------------|----------------------------|------------------------|
| Adrenal Gland                      | Medulla      | Pheochromocytoma Benign    |                        |
| Note: PHEOCHROM BGN TGLs = 7-8     |              |                            |                        |
| Bone Marrow                        |              | Pigmentation               | Minimal                |
| Brain                              |              | Granular Cell Tumor Benign |                        |
| Eye                                | Lens         | Cataract                   | Mild                   |
| [ Cataract TGLS = 2-13 ]           |              |                            |                        |
| Intestine Small                    | Duodenum     | Pigmentation               | Minimal                |
|                                    | Jejunum      | Pigmentation               | Minimal                |
| Kidney                             | Renal Tubule | Nephropathy                | Moderate               |
| Note: NEPHROPATHY TGLs = 8-4       |              | Pigmentation               | Minimal                |
| Liver                              |              | Basophilic Focus           |                        |
|                                    |              | Fatty Change               | Focal, Mild            |
|                                    |              | Inflammation               | Granulomatous, Minimal |
|                                    |              | Pigmentation               | Minimal                |
| Note: BASOPH FOCUS TGLs = 10-3+3.1 |              |                            |                        |
| Lung                               |              | Infiltration Cellular      | Histiocyte, Mild       |
| Lymph Node                         | Mesenteric   | Infiltration Cellular      | Histiocyte, Mild       |
|                                    | Mandibular   | Pigmentation               | Minimal                |
|                                    | Mesenteric   | Pigmentation               | Mild                   |
| Note: INFILTRAT CELL TGLs = 6-8    |              |                            |                        |
| Mammary Gland                      |              | Galactocele                |                        |
| Note: GALACTOCELE TGLs = 11-10     |              |                            |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 210

TRT#: 6

SEX: Female

DAY ON TEST: 693

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

|                             |                |                                  |                   |
|-----------------------------|----------------|----------------------------------|-------------------|
| Nose                        |                | Inflammation                     | Acute, Minimal    |
| Pituitary Gland             | Pars Distalis  | Adenoma                          |                   |
|                             | Pars Distalis  | Angiectasis                      | Moderate          |
| Note: ADENOMA               | TGLs = 9-8     |                                  |                   |
| Note: MORE LIKE A CARCINOMA |                |                                  |                   |
| Spleen                      |                | Hematopoietic Cell Proliferation | Mild              |
|                             |                | Infiltration Cellular            | Histiocyte, Mild  |
|                             |                | Pigmentation                     | Mild              |
|                             |                | Pigmentation                     | Hemosiderin, Mild |
| Stomach                     | Glandular      | Erosion                          | Minimal           |
|                             | Glandular      | Fibrosis                         | Mild              |
|                             | Glandular      | Hyperplasia                      | Mild              |
|                             | Glandular      | Metaplasia                       | Minimal           |
|                             | Glandular      | Mineralization                   | Minimal           |
|                             | Glandular      | Pigmentation                     | Minimal           |
|                             | Fat            | Proliferation                    | Minimal           |
| Thymus                      |                | Pigmentation                     | Minimal           |
| Thyroid Gland               | Follicular Cel | Adenoma                          | Multiple          |
|                             | Follicular Cel | Hyperplasia                      | Mild              |
| Note: ADENOMA               | TGLs = 4-8     |                                  |                   |
| PRIMARY CAUSE OF DEATH      | -              |                                  |                   |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 211

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                    |                         |
|-------------------------|--------------------------|--------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone               | Brain                   |
| Clitoral Gland          | Esophagus                | Heart              | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Islets, Pancreatic | Ovary                   |
| Pancreas                | Parathyroid Gland        | Salivary Glands    | Skin                    |
| Stomach - Forestomach   | Thyroid Gland            | Trachea            | Urinary Bladder         |
| Uterus                  |                          |                    |                         |

**MISSING**

Intestine Small - Ileum

**OBSERVATIONS**

|                                     |              |                            |                        |
|-------------------------------------|--------------|----------------------------|------------------------|
| Bone Marrow                         |              | Pigmentation               | Minimal                |
| Intestine Small                     | Duodenum     | Pigmentation               | Minimal                |
|                                     | Jejunum      | Pigmentation               | Minimal                |
| Kidney                              |              | Nephropathy                | Mild                   |
|                                     | Renal Tubule | Pigmentation               | Minimal                |
| Liver                               |              | Basophilic Focus           |                        |
|                                     |              | Hepatodiaphragmatic Nodule |                        |
|                                     |              | Inflammation               | Granulomatous, Minimal |
|                                     |              | Pigmentation               | Minimal                |
| Note: [ BASOPH FOCUS ] TGLs = 8-3.1 |              |                            |                        |
| Note: ANOM HEPAT LOB TGLs = 7-3     |              |                            |                        |
| Lung                                |              | Infiltration Cellular      | Histiocyte, Mild       |
|                                     |              | Pigmentation               | Minimal                |
| Lymph Node                          | Mesenteric   | Infiltration Cellular      | Histiocyte, Mild       |
|                                     | Pancreatic   | Infiltration Cellular      | Histiocyte, Mild       |
|                                     | Mandibular   | Pigmentation               | Mild                   |
|                                     | Mesenteric   | Pigmentation               | Moderate               |
|                                     | Pancreatic   | Pigmentation               | Moderate               |
| Note: INFILTRAT CELL TGLs = 5-16    |              |                            |                        |
| Mammary Gland                       |              | Fibroadenoma               | Multiple               |
| Note: FIBROADENOMA TGLs = 1-14,2-15 |              |                            |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 211      **TRT#:** 6      **SEX:** Female      **DAY ON TEST:** 744  
**DOSE:** 0.05 G/KG 79 HF      **DISP:** Terminal Sacrifice      **HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|  |               |                                  |                   |
|--|---------------|----------------------------------|-------------------|
| Mesentery<br>Note: NECROSIS      TGLs = 6-16     | Fat           | Necrosis                         | Moderate          |
| Nose   |               | Inflammation                     | Acute, Mild       |
| Pharynx<br>Note: PAPILLOMA SQUA      TGLs = 4-13 | Palate        | Squamous Cell Papilloma          |                   |
| Pituitary Gland                                  | Pars Distalis | Adenoma                          |                   |
| Note: ADENOMA      TGLs = 9-8                    | Pars Distalis | Angiectasis                      | Mild              |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild              |
|  |               | Infiltration Cellular            | Histiocyte, Mild  |
|  |               | Pigmentation                     | Hemosiderin, Mild |
|  |               | Pigmentation                     | Mild              |
| Stomach  | Glandular     | Fibrosis                         | Mild              |
|  | Glandular     | Metaplasia                       | Minimal           |
|  | Fat           | Proliferation                    | Mild              |
| Thymus   |               | Pigmentation                     | Minimal           |

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 212

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                     |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Stomach - Forestomach     |
| Thyroid Gland           | Trachea                  | Urinary Bladder         |                           |

**MISSING**

Thymus

**OBSERVATIONS**

|                                 |               |                       |                        |
|---------------------------------|---------------|-----------------------|------------------------|
| Bone Marrow                     |               | Pigmentation          | Mild                   |
| Intestine Small                 | Duodenum      | Pigmentation          | Minimal                |
| Kidney                          |               | Nephropathy           | Mild                   |
|                                 | Renal Tubule  | Pigmentation          | Mild                   |
| Liver                           |               | Basophilic Focus      |                        |
|                                 |               | Clear Cell Focus      |                        |
|                                 |               | Inflammation          | Granulomatous, Minimal |
|                                 |               | Pigmentation          | Minimal                |
| Note: CLEAR CL FOCUS TGLs = 4-3 |               |                       |                        |
| Lung                            |               | Infiltration Cellular | Histiocyte, Minimal    |
|                                 |               | Pigmentation          | Minimal                |
| Lymph Node                      | Mandibular    | Infiltration Cellular | Histiocyte, Mild       |
|                                 | Mesenteric    | Infiltration Cellular | Histiocyte, Mild       |
|                                 | Mandibular    | Pigmentation          | Mild                   |
|                                 | Mesenteric    | Pigmentation          | Mild                   |
| Mammary Gland                   |               | Fibroadenoma          |                        |
| [ Fibroadenoma TGLS = 1-13 ]    |               |                       |                        |
| Pituitary Gland                 | Pars Distalis | Hyperplasia           | Minimal                |
| Spleen                          |               | Infiltration Cellular | Histiocyte, Mild       |
|                                 |               | Pigmentation          | Hemosiderin, Mild      |
|                                 |               | Pigmentation          | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 212 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|         |           |                |             |
|---------|-----------|----------------|-------------|
| Stomach | Glandular | Fibrosis       | Mild        |
|         | Glandular | Metaplasia     | Mild        |
|         | Glandular | Mineralization | Minimal     |
|         | Glandular | Pigmentation   | Minimal     |
|         | Fat       | Proliferation  | Moderate    |
| Uterus  |           | Inflammation   | Acute, Mild |

Note: DESQUAMATED CELLS AND INFLAMMATORY CELLS  
Note: INFLAMMATION TGLs = 2-6

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 213

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                         |
|-------------------------|--------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                   |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      |
| Nose                    | Ovary                    | Pancreas                | Parathyroid Gland       |
| Salivary Glands         | Skin                     | Trachea                 | Urinary Bladder         |
| Uterus                  |                          |                         |                         |

**OBSERVATIONS**

|                      |                  |                            |                        |
|----------------------|------------------|----------------------------|------------------------|
| Bone Marrow          |                  | Pigmentation               | Minimal                |
| Intestine Small      | Duodenum         | Pigmentation               | Minimal                |
|                      | Jejunum          | Pigmentation               | Minimal                |
| Kidney               |                  | Nephropathy                | Minimal                |
|                      | Renal Tubule     | Pigmentation               | Mild                   |
| Liver                |                  | Basophilic Focus           |                        |
|                      |                  | Eosinophilic Focus         |                        |
|                      |                  | Hepatodiaphragmatic Nodule |                        |
|                      |                  | Inflammation               | Granulomatous, Minimal |
|                      |                  | Mixed Cell Focus           |                        |
|                      |                  | Pigmentation               | Minimal                |
| Note: MIXED CL FOCUS | TGLs = 4-3.1     |                            |                        |
| Note: ANOM HEPAT LOB | TGLs = 5-3       |                            |                        |
| Lung                 |                  | Infiltration Cellular      | Histiocyte, Minimal    |
|                      |                  | Pigmentation               | Minimal                |
| Lymph Node           | Mandibular       | Infiltration Cellular      | Histiocyte, Minimal    |
|                      | Mesenteric       | Infiltration Cellular      | Histiocyte, Mild       |
|                      | Mandibular       | Pigmentation               | Minimal                |
|                      | Mesenteric       | Pigmentation               | Mild                   |
| Mammary Gland        |                  | Fibroadenoma               |                        |
|                      |                  | Galactocele                |                        |
| Note: FIBROADENOMA   | TGLs = 2-13+13.1 |                            |                        |
| Pituitary Gland      | Pars Distalis    | Hyperplasia                | Mild                   |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 213

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Note: [ HYPERPLASIA ] TGLs = 6-8

|               |             |                                  |                   |
|---------------|-------------|----------------------------------|-------------------|
| Spleen        |             | Hematopoietic Cell Proliferation | Mild              |
|               |             | Infiltration Cellular            | Histiocyte, Mild  |
|               |             | Pigmentation                     | Hemosiderin, Mild |
|               |             | Pigmentation                     | Mild              |
| Stomach       | Forestomach | Acanthosis                       | Mild              |
|               | Glandular   | Fibrosis                         | Mild              |
|               | Forestomach | Hyperkeratosis                   | Mild              |
|               | Glandular   | Metaplasia                       | Minimal           |
|               | Fat         | Proliferation                    | Moderate          |
| Thymus        |             | Pigmentation                     | Minimal           |
| Thyroid Gland | C Cell      | Adenoma                          |                   |

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 214

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 496

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Nose                    |
| Ovary                     | Pancreas                 | Salivary Glands            | Skin                    |
| Stomach - Forestomach     | Thymus                   | Thyroid Gland              | Trachea                 |
| Urinary Bladder           | Uterus                   |                            |                         |

**MISSING**

|                |                   |
|----------------|-------------------|
| Clitoral Gland | Parathyroid Gland |
|----------------|-------------------|

**OBSERVATIONS**

|  |               |                                  |                      |
|--|---------------|----------------------------------|----------------------|
| Liver  |               | Basophilic Focus<br>Necrosis     | Minimal              |
| Note: PIGMENT IN PORTAL RADICLES. EARLY LEUKEMIA ? |               |                                  |                      |
| Lung   |               | Infiltration Cellular            | Histiocyte, Minimal  |
| Lymph Node   | Mandibular    | Infiltration Cellular            | Histiocyte, Minimal  |
|  | Mesenteric    | Infiltration Cellular            | Histiocyte, Moderate |
| Note: INFILTRAT CELL TGLs = 4-8                    |               |                                  |                      |
| Mammary Gland                                      |               | Fibroadenoma                     |                      |
| [ Fibroadenoma TGLS = 2-13 ]                       |               |                                  |                      |
| Pituitary Gland                                    | Pars Distalis | Hyperplasia                      | Minimal              |
| Spleen   |               | Hematopoietic Cell Proliferation | Mild                 |
| Stomach  | Glandular     | Fibrosis                         | Minimal              |
|  | Glandular     | Metaplasia                       | Minimal              |

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 215

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                            |                         |                           |                          |
|----------------------------|-------------------------|---------------------------|--------------------------|
| Adrenal Gland - Cortex     | Bone                    | Brain                     | Clitoral Gland           |
| Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   | Intestine Large - Rectum |
| Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic       |
| Mammary Gland              | Nose                    | Ovary                     | Pancreas                 |
| Parathyroid Gland          | Salivary Glands         | Skin                      | Stomach - Forestomach    |
| Trachea                    | Urinary Bladder         | Uterus                    |                          |

**OBSERVATIONS**

|                                      |               |                                  |                      |
|--------------------------------------|---------------|----------------------------------|----------------------|
| Adrenal Gland                        | Medulla       | Pheochromocytoma Benign          |                      |
| Bone Marrow                          |               | Pigmentation                     | Minimal              |
| Heart                                |               | Cardiomyopathy                   | Mild                 |
| Kidney                               |               | Nephropathy                      | Minimal              |
|                                      | Renal Tubule  | Pigmentation                     | Mild                 |
| Liver                                |               | Basophilic Focus                 |                      |
|                                      |               | Inflammation                     | Granulomatous, Mild  |
|                                      |               | Pigmentation                     | Mild                 |
| Lung                                 |               | Infiltration Cellular            | Histiocyte, Mild     |
|                                      |               | Pigmentation                     | Minimal              |
| Note: INFILTRAT CELL TGLs = 7-1      |               |                                  |                      |
| Lymph Node                           | Mesenteric    | Infiltration Cellular            | Histiocyte, Mild     |
|                                      | Pancreatic    | Infiltration Cellular            | Histiocyte, Mild     |
|                                      | Mandibular    | Pigmentation                     | Minimal              |
|                                      | Mesenteric    | Pigmentation                     | Mild                 |
|                                      | Pancreatic    | Pigmentation                     | Moderate             |
| Note: INFILTRAT CELL TGLs = 1-13,3-8 |               |                                  |                      |
| Mesentery                            | Fat           | Inflammation                     | Chronic Active, Mild |
| Note: INFLAMMATION TGLs = 2-13       |               |                                  |                      |
| Pituitary Gland                      | Pars Distalis | Hyperplasia                      | Mild                 |
| Note: HYPERPLASIA TGLs = 8-8         |               |                                  |                      |
| Spleen                               |               | Hematopoietic Cell Proliferation | Mild                 |
|                                      |               | Infiltration Cellular            | Histiocyte, Mild     |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 215 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|               |           |               |                   |
|---------------|-----------|---------------|-------------------|
|               |           | Pigmentation  | Hemosiderin, Mild |
|               |           | Pigmentation  | Mild              |
| Stomach       | Glandular | Fibrosis      | Mild              |
|               | Glandular | Hyperplasia   | Minimal           |
|               | Glandular | Metaplasia    | Mild              |
|               | Fat       | Proliferation | Moderate          |
| Thymus        |           | Pigmentation  | Minimal           |
| Thyroid Gland | C Cell    | Hyperplasia   | Minimal           |

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 216

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Bone                      | Brain                   | Clitoral Gland           |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Nose                     |
| Ovary                   | Parathyroid Gland         | Salivary Glands         | Skin                     |
| Trachea                 | Urinary Bladder           | Uterus                  |                          |

**OBSERVATIONS**

|  |              |                            |                        |
|--|--------------|----------------------------|------------------------|
| Adrenal Gland                                      | Medulla      | Hyperplasia                | Minimal                |
|  | Medulla      | Pheochromocytoma Benign    |                        |
| Bone Marrow  |              | Pigmentation               | Minimal                |
| Heart  |              | Cardiomyopathy             | Mild                   |
| Intestine Small                                    | Duodenum     | Leiomyosarcoma             |                        |
|  | Duodenum     | Pigmentation               | Minimal                |
| Note: [ LEIOMYOSAR ] TGLs = 5-7.1                  |              |                            |                        |
| Note: ECTOPIC PANCREATIC TISSUE OR METAPLASIA      |              |                            |                        |
| Kidney   |              | Nephropathy                | Minimal                |
|  | Renal Tubule | Pigmentation               | Mild                   |
| Liver  |              | Basophilic Focus           |                        |
|  |              | Eosinophilic Focus         |                        |
|  |              | Hepatodiaphragmatic Nodule |                        |
|  |              | Inflammation               | Granulomatous, Minimal |
|  |              | Leukemia Mononuclear       |                        |
|  |              | Necrosis                   | Minimal                |
|  |              | Pigmentation               | Minimal                |
| Note: ANOM HEPAT LOB TGLs = 6-3.1                  |              |                            |                        |
| Lung   |              | Atelectasis                | Mild                   |
|  |              | Infiltration Cellular      | Histiocyte, Mild       |
|  |              | Inflammation               | Granulomatous, Minimal |
|  |              | Pigmentation               | Minimal                |
| Note: MUCINOUS MATERIAL AND PIGMENT IN BRONCHIOLES |              |                            |                        |
| Note: TALL BRONCHIAL EPITHELIUM                    |              |                            |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 216

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

[ Atelectasis TGLS = 3-1+2 ]

|            |            |                       |                     |
|------------|------------|-----------------------|---------------------|
| Lymph Node | Mandibular | Infiltration Cellular | Histiocyte, Minimal |
|            | Mesenteric | Infiltration Cellular | Histiocyte, Mild    |
|            | Pancreatic | Infiltration Cellular | Histiocyte, Mild    |
|            | Mandibular | Pigmentation          | Mild                |
|            | Mesenteric | Pigmentation          | Moderate            |
|            | Pancreatic | Pigmentation          | Mild                |

Note: INFILTRAT CELL TGLs = 4-13

Mammary Gland

Fibroadenoma  
Galactocele

Note: FIBROADENOMA TGLs = 2-13

Note: GALACTOCELE TGLs = 1-10

|                 |               |                      |         |
|-----------------|---------------|----------------------|---------|
| Pancreas        | Acinus        | Adenoma              |         |
| Pituitary Gland | Pars Distalis | Hyperplasia          | Mild    |
| Spleen          |               | Leukemia Mononuclear |         |
| Stomach         | Forestomach   | Acanthosis           | Mild    |
|                 | Glandular     | Fibrosis             | Minimal |
|                 | Glandular     | Metaplasia           | Minimal |
|                 | Glandular     | Pigmentation         | Minimal |
| Thymus          |               | Pigmentation         | Minimal |
| Thyroid Gland   | C Cell        | Hyperplasia          | Minimal |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 219

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Bone Marrow               |
| Clitoral Gland          | Esophagus                | Harderian Gland         | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Nose                     | Ovary                   | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Thyroid Gland             |
| Trachea                 | Urinary Bladder          | Uterus                  |                           |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|                             |              |                       |                        |
|-----------------------------|--------------|-----------------------|------------------------|
| Brain                       |              | Leukemia Mononuclear  |                        |
| Eye                         | Lens         | Cataract              | Mild                   |
| Note: CATARACT              | TGLs = 1-13  |                       |                        |
| Heart                       |              | Cardiomyopathy        | Mild                   |
| Intestine Small             | Duodenum     | Pigmentation          | Minimal                |
| Kidney                      |              | Nephropathy           | Minimal                |
|                             | Renal Tubule | Pigmentation          | Mild                   |
| Liver                       |              | Fatty Change          | Diffuse, Mild          |
|                             |              | Inflammation          | Granulomatous, Minimal |
|                             |              | Leukemia Mononuclear  |                        |
|                             |              | Pigmentation          | Minimal                |
| [ Fatty Change TGLS = 4-3 ] |              |                       |                        |
| Lung                        |              | Infiltration Cellular | Histiocyte, Minimal    |
|                             |              | Leukemia Mononuclear  |                        |
|                             |              | Pigmentation          | Minimal                |
| Lymph Node                  | Mandibular   | Leukemia Mononuclear  |                        |
|                             | Mesenteric   | Leukemia Mononuclear  |                        |
| Note: LEUKEMIA MONUC        | TGLs = 3-8   |                       |                        |
| Pituitary Gland             |              | Leukemia Mononuclear  |                        |
| Note: LEUKEMIA MONUC        | TGLs = 5-8   |                       |                        |
| Spleen                      |              | Leukemia Mononuclear  |                        |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 219 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 749 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Leukemia Mononuclear TGLS = 2-3 ]

|                             |             |                |             |
|-----------------------------|-------------|----------------|-------------|
| Stomach                     | Forestomach | Acanthosis     | Mild        |
|                             | Glandular   | Erosion        | Minimal     |
|                             | Glandular   | Fibrosis       | Mild        |
|                             | Forestomach | Hyperkeratosis | Mild        |
|                             | Glandular   | Hyperplasia    | Mild        |
|                             | Forestomach | Inflammation   | Acute, Mild |
|                             | Glandular   | Metaplasia     | Mild        |
|                             | Fat         | Proliferation  | Marked      |
| Note: ACANTHOSIS TGLs = 6-7 |             |                |             |
| Thymus                      |             | Pigmentation   | Minimal     |

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PRIMARY CAUSE OF DEATH

-

Animal Note: THAN MONONUCLEAR LEUKEMIA

Animal Note: HEMOPOIETIC NEOPLASM MORE LIKE LYMPHOCYTIC

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 221

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 415

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                            |                         |                           |
|--------------------------|----------------------------|-------------------------|---------------------------|
| Adrenal Gland - Medulla  | Bone                       | Bone Marrow             | Brain                     |
| Clitoral Gland           | Esophagus                  | Intestine Large - Cecum | Intestine Large - Colon   |
| Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic       | Mammary Gland              | Ovary                   | Pancreas                  |
| Parathyroid Gland        | Pituitary Gland            | Salivary Glands         | Skin                      |
| Thymus                   | Thyroid Gland              | Trachea                 | Urinary Bladder           |
| Uterus                   |                            |                         |                           |

**OBSERVATIONS**

|                                  |              |                       |                      |
|----------------------------------|--------------|-----------------------|----------------------|
| Adrenal Gland                    | Cortex       | Necrosis              | Mild                 |
| Note: INFARCT IN ONE GLAND       |              |                       |                      |
| Heart                            |              | Cardiomyopathy        | Minimal              |
| Kidney                           | Renal Tubule | Pigmentation          | Minimal              |
| Liver                            |              | Pigmentation          | Minimal              |
| Note: PIGMENT IN PORTAL RADICLES |              |                       |                      |
| Lung                             |              | Congestion            | Moderate             |
| [ Congestion TGLS = 2-1+2 ]      |              |                       |                      |
| Lymph Node                       | Mandibular   | Infiltration Cellular | Histiocyte, Minimal  |
|                                  | Mediastinal  | Infiltration Cellular | Histiocyte, Mild     |
|                                  | Mesenteric   | Infiltration Cellular | Histiocyte, Mild     |
|                                  | Mediastinal  | Pigmentation          | Minimal              |
| Note: INFILTRAT CELL TGLs = 1-9  |              |                       |                      |
| Nose                             |              | Inflammation          | Acute, Moderate      |
| Spleen                           |              | Infiltration Cellular | Histiocyte, Moderate |
|                                  |              | Pigmentation          | Mild                 |
| Stomach                          | Glandular    | Erosion               | Minimal              |
|                                  | Glandular    | Fibrosis              | Mild                 |
|                                  | Glandular    | Hemorrhage            | Minimal              |
|                                  | Glandular    | Hyperplasia           | Minimal              |
|                                  | Forestomach  | Inflammation          | Acute, Mild          |
|                                  | Glandular    | Metaplasia            | Minimal              |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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**ANIMAL ID:** 221

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 415

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

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**ORGAN AND ACCOUNTABLE SITE STATUS**

Fat

Proliferation

Moderate

Note: HYPERPLASIA TGLs = 4-7.1

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**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 222

TRT#: 6

SEX: Female

DAY ON TEST: 639

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Clitoral Gland           | Ear                        | Esophagus               |
| Eye                       | Harderian Gland          | Heart                      | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Mammary Gland              | Nose                    |
| Ovary                     | Pancreas                 | Parathyroid Gland          | Salivary Glands         |
| Skin                      | Spinal Cord              | Thymus                     | Trachea                 |
| Urinary Bladder           |                          |                            |                         |

OBSERVATIONS

|   |               |                                  |                      |
|---|---------------|----------------------------------|----------------------|
| Ear   |               |                                  |                      |
| Note: NECROTIC DEBRIS IN DUCT                   |               |                                  |                      |
| Kidney  |               | Nephropathy                      | Mild                 |
|   | Renal Tubule  | Pigmentation                     | Mild                 |
| Liver   |               | Basophilic Focus                 |                      |
|   |               | Fatty Change                     | Focal, Mild          |
| Note: PIGMENT IN PORTAL RADICLES                |               |                                  |                      |
| Lung  |               | Atelectasis                      | Mild                 |
|   |               | Pigmentation                     | Mild                 |
| Note: ATELECTASIS TGLs = 2-1                    |               |                                  |                      |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES. PIGMENT |               |                                  |                      |
| Note: PIGMENT TGLs = 3-1+2                      |               |                                  |                      |
| Lymph Node                                      | Mandibular    | Infiltration Cellular            | Histiocyte, Minimal  |
|   | Mesenteric    | Infiltration Cellular            | Histiocyte, Moderate |
|   | Mesenteric    | Pigmentation                     | Mild                 |
| Pituitary Gland                                 | Pars Distalis | Adenoma                          |                      |
|   | Pars Distalis | Angiectasis                      | Moderate             |
| Note: ADENOMA TGLs = 5-8.1                      |               |                                  |                      |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild                 |
|   |               | Infiltration Cellular            | Histiocyte, Mild     |
| Stomach   | Glandular     | Fibrosis                         | Minimal              |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 222

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 639

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Forestomach

Inflammation

Acute, Mild

Glandular

Inflammation

Acute, Minimal

Glandular

Metaplasia

Minimal

Fat

Proliferation

Minimal

Note: MORE LIKE ATOPHIC GASTRITIS

Thyroid Gland

C Cell

Hyperplasia

Mild

Uterus

Polyp Stromal

Note: POLYP STROMAL TGLs = 7-6

PRIMARY CAUSE OF DEATH

-

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 223

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 643

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                          |                         |                         |
|-------------------------|--------------------------|-------------------------|-------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla  | Bone                    | Brain                   |
| Clitoral Gland          | Esophagus                | Heart                   | Intestine Large - Cecum |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Islets, Pancreatic      |
| Ovary                   | Pancreas                 | Parathyroid Gland       | Salivary Glands         |
| Skin                    | Trachea                  | Urinary Bladder         |                         |

**OBSERVATIONS**

|                      |                |                            |                     |
|----------------------|----------------|----------------------------|---------------------|
| Bone Marrow          |                | Pigmentation               | Minimal             |
| Intestine Small      | Duodenum       | Pigmentation               | Minimal             |
|                      | Jejunum        | Pigmentation               | Minimal             |
| Kidney               | Papilla        | Mineralization             | Minimal             |
|                      |                | Nephropathy                | Minimal             |
|                      | Renal Tubule   | Pigmentation               | Minimal             |
| Liver                |                | Basophilic Focus           |                     |
|                      |                | Fatty Change               | Diffuse, Mild       |
|                      |                | Hepatodiaphragmatic Nodule |                     |
|                      |                | Inflammation               | Granulomatous, Mild |
|                      |                | Pigmentation               | Mild                |
| Note: ANOM HEPAT LOB | TGLs = 6-3.1   |                            |                     |
| Note: FATTY CHANGE   | TGLs = 4-3+3.1 |                            |                     |
| Lung                 |                | Infiltration Cellular      | Histiocyte, Minimal |
|                      |                | Pigmentation               | Minimal             |
| Lymph Node           | Mediastinal    | Infiltration Cellular      | Histiocyte, Minimal |
|                      | Mesenteric     | Infiltration Cellular      | Histiocyte, Minimal |
|                      | Mandibular     | Pigmentation               | Minimal             |
|                      | Mediastinal    | Pigmentation               | Minimal             |
|                      | Mesenteric     | Pigmentation               | Minimal             |
| Mammary Gland        | Acinus         | Hyperplasia                | Mild                |
| Nose                 |                | Inflammation               | Acute, Mild         |
| Pituitary Gland      | Pars Distalis  | Adenoma                    |                     |
|                      | Pars Distalis  | Angiectasis                | Moderate            |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 223

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 643

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|               |             |                                  |                   |
|---------------|-------------|----------------------------------|-------------------|
| Note: ADENOMA | TGLs = 5-8  |                                  |                   |
| Spleen        |             | Hematopoietic Cell Proliferation | Mild              |
|               |             | Infiltration Cellular            | Histiocyte, Mild  |
|               |             | Pigmentation                     | Mild              |
|               |             | Pigmentation                     | Hemosiderin, Mild |
| Stomach       | Forestomach | Acanthosis                       | Mild              |
|               | Glandular   | Erosion                          | Minimal           |
|               | Forestomach | Hyperkeratosis                   | Minimal           |
|               | Glandular   | Hyperplasia                      | Minimal           |
|               | Glandular   | Pigmentation                     | Minimal           |
| Thymus        |             | Pigmentation                     | Minimal           |
| Thyroid Gland | C Cell      | Hyperplasia                      | Mild              |
| Uterus        | Endometrium | Hyperplasia                      | Mild              |
|               |             | Polyp Stromal                    |                   |

Note: POLYP STROMAL TGLs = 3-6

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 224

TRT#: 6

SEX: Female

DAY ON TEST: 694

DOSE: 0.05 G/KG 79 HF

DISP: Moribund

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Islets, Pancreatic  
Salivary Glands  
Trachea

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Large - Rectum  
Ovary  
Skin  
Urinary Bladder

Bone  
Esophagus  
Intestine Small - Ileum  
Pancreas  
Stomach - Forestomach  
Uterus

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Jejunum  
Parathyroid Gland  
Thyroid Gland

OBSERVATIONS

Heart  
Intestine Small  
Kidney

Duodenum  
Papilla

Cardiomyopathy  
Pigmentation  
Mineralization  
Nephropathy  
Pigmentation  
Basophilic Focus  
Fatty Change  
Inflammation  
Pigmentation

Mild  
Minimal  
Minimal  
Minimal  
Minimal  
Diffuse, Mild  
Granulomatous, Minimal  
Minimal

Note: FATTY CHANGE TGLs = 4-3  
Lung

Hemorrhage  
Infiltration Cellular  
Pigmentation

Minimal  
Histiocyte, Minimal  
Minimal

Note: INFILTRAT CELL TGLs = 2-1+2  
Lymph Node

Mandibular  
Mesenteric  
Mandibular  
Mesenteric

Infiltration Cellular  
Infiltration Cellular  
Pigmentation  
Pigmentation  
Fibroadenoma  
Galactocele

Histiocyte, Minimal  
Histiocyte, Mild  
Mild  
Moderate

Mammary Gland

[ Galactocele TGLS = 1-13 ]

Nose

Fungus  
Inflammation

Mild  
Acute, Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 224 | <b>TRT#:</b> 6               | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 694 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                 |               |                                  |                   |
|-----------------|---------------|----------------------------------|-------------------|
| Pituitary Gland | Pars Distalis | Adenoma                          |                   |
|                 | Pars Distalis | Angiectasis                      | Mild              |
| Note: ADENOMA   | TGLs = 5-8    |                                  |                   |
| Spleen          |               | Hematopoietic Cell Proliferation | Mild              |
|                 |               | Infiltration Cellular            | Histiocyte, Mild  |
|                 |               | Pigmentation                     | Hemosiderin, Mild |
|                 |               | Pigmentation                     | Mild              |
| Stomach         | Glandular     | Fibrosis                         | Minimal           |
|                 | Glandular     | Metaplasia                       | Minimal           |
|                 | Glandular     | Pigmentation                     | Minimal           |
|                 | Fat           | Proliferation                    | Minimal           |
| Thymus          |               | Pigmentation                     | Minimal           |

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PRIMARY CAUSE OF DEATH

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-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 227

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Brain                     | Clitoral Gland          |
| Esophagus                | Heart                   | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Lymph Node - Mandibular  | Ovary                   | Pancreas                  | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Thyroid Gland             | Trachea                 |
| Urinary Bladder          |                         |                           |                         |

**OBSERVATIONS**

|  |                    |                            |                        |
|--|--------------------|----------------------------|------------------------|
| Adrenal Gland  | Bilateral, Medulla | Pheochromocytoma Benign    |                        |
| Bone Marrow  |                    | Pigmentation               | Minimal                |
| Intestine Small  | Duodenum           | Pigmentation               | Minimal                |
| Kidney   |                    | Nephropathy                | Moderate               |
| Liver  |                    | Basophilic Focus           |                        |
|  |                    | Fatty Change               | Focal, Minimal         |
|  |                    | Hepatodiaphragmatic Nodule |                        |
|  |                    | Inflammation               | Granulomatous, Minimal |
|  |                    | Leukemia Mononuclear       |                        |
|  |                    | Pigmentation               | Mild                   |
| Note: ANOM HEPAT LOB TGLs = 10-3.1                         |                    |                            |                        |
| Lung   |                    | Infiltration Cellular      | Histiocyte, Minimal    |
|  |                    | Pigmentation               | Minimal                |
| Note: MUCINOUS MATERIAL IN BRONCHIOLES AND TALL EPITHELIUM |                    |                            |                        |
| Note: INFILTRAT CELL TGLs = 3-1                            |                    |                            |                        |
| Lymph Node   | Mediastinal        | Infiltration Cellular      | Histiocyte, Mild       |
|  | Mesenteric         | Infiltration Cellular      | Histiocyte, Mild       |
|  | Pancreatic         | Infiltration Cellular      | Histiocyte, Moderate   |
|  | Mediastinal        | Pigmentation               | Mild                   |
|  | Mesenteric         | Pigmentation               | Mild                   |
|  | Pancreatic         | Pigmentation               | Moderate               |
| Note: INFILTRAT CELL TGLs = 2-2,5-9                        |                    |                            |                        |
| Mammary Gland  |                    | Fibroadenoma               |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 227

TRT#: 6

SEX: Female

DAY ON TEST: 749

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

Note: TGL#1 PROBABLY REFERS TO MAMMARY GLAND MASS

|                 |                                   |                                  |                   |
|-----------------|-----------------------------------|----------------------------------|-------------------|
| Nose            |                                   | Inflammation                     | Acute, Mild       |
| Pituitary Gland | Pars Distalis                     | Cyst                             |                   |
|                 | Pars Distalis                     | Hyperplasia                      | Mild              |
|                 | Note: HYPERPLASIA TGLs = 11-8     |                                  |                   |
| Spleen          |                                   | Hematopoietic Cell Proliferation | Mild              |
|                 |                                   | Infiltration Cellular            | Histiocyte, Mild  |
|                 |                                   | Leukemia Mononuclear             |                   |
|                 |                                   | Pigmentation                     | Hemosiderin, Mild |
|                 |                                   | Pigmentation                     | Mild              |
| Stomach         | Forestomach                       | Acanthosis                       | Mild              |
|                 | Glandular                         | Fibrosis                         | Mild              |
|                 | Forestomach                       | Hyperkeratosis                   | Mild              |
|                 | Glandular                         | Hyperplasia                      | Minimal           |
|                 | Glandular                         | Metaplasia                       | Minimal           |
|                 | Fat                               | Proliferation                    | Moderate          |
| Thymus          |                                   | Pigmentation                     | Minimal           |
| Uterus          | Cervix                            | Inflammation                     | Acute, Moderate   |
|                 |                                   | Polyp Stromal                    |                   |
|                 | Note: INFLAMMATION TGLs = 7-6,8-6 |                                  |                   |
|                 | Note: POLYP STROMAL TGLs = 6-6    |                                  |                   |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 228

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 749

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Bone                    | Bone Marrow               | Brain                   | Clitoral Gland           |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Nose                    | Ovary                     | Parathyroid Gland       | Pituitary Gland          |
| Skin                    | Thyroid Gland             | Trachea                 | Uterus                   |

**OBSERVATIONS**

|                      |              |                       |                  |
|----------------------|--------------|-----------------------|------------------|
| Adrenal Gland        | Medulla      | Hyperplasia           | Mild             |
|                      | Cortex       | Leukemia Mononuclear  |                  |
|                      | Medulla      | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 4-8   |                       |                  |
| Heart                |              | Leukemia Mononuclear  |                  |
| Intestine Small      | Duodenum     | Pigmentation          | Minimal          |
| Kidney               |              | Leukemia Mononuclear  |                  |
| Liver                |              | Basophilic Focus      |                  |
|                      |              | Leukemia Mononuclear  |                  |
|                      |              | Pigmentation          | Minimal          |
| Note: LEUKEMIA MONUC | TGLs = 5-3   |                       |                  |
| Lung                 |              | Leukemia Mononuclear  |                  |
| Lymph Node           | Mesenteric   | Infiltration Cellular | Histiocyte, Mild |
|                      | Mandibular   | Leukemia Mononuclear  |                  |
|                      | Mediastinal  | Leukemia Mononuclear  |                  |
|                      | Mesenteric   | Leukemia Mononuclear  |                  |
|                      | Mesenteric   | Pigmentation          | Mild             |
| Note: LEUKEMIA MONUC | TGLs = 2-2   |                       |                  |
| Pancreas             |              | Leukemia Mononuclear  |                  |
| Salivary Glands      |              | Leukemia Mononuclear  |                  |
| Spleen               |              | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 3-3.1 |                       |                  |
| Stomach              | Forestomach  | Acanthosis            | Mild             |
|                      | Glandular    | Fibrosis              | Mild             |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 228

**TRT#:** 6  
**DOSE:** 0.05 G/KG 79 HF

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 749  
**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

Glandular  
Fat

Metaplasia  
Proliferation

Mild  
Mild

Note: ACANTHOSIS TGLs = 7-7

Thymus

Leukemia Mononuclear

Note: LEUKEMIA MONUC TGLs = 1-2

Urinary Bladder

Leukemia Mononuclear

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 229

TRT#: 6

SEX: Female

DAY ON TEST: 748

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                          |                         |                           |
|-------------------------|--------------------------|-------------------------|---------------------------|
| Bone                    | Clitoral Gland           | Esophagus               | Intestine Large - Cecum   |
| Intestine Large - Colon | Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum |
| Islets, Pancreatic      | Mammary Gland            | Nose                    | Pancreas                  |
| Parathyroid Gland       | Salivary Glands          | Skin                    | Trachea                   |
| Urinary Bladder         |                          |                         |                           |

MISSING

Adrenal Gland - Medulla

OBSERVATIONS

|                      |                 |                       |                  |
|----------------------|-----------------|-----------------------|------------------|
| Adrenal Gland        | Cortex          | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 7-8      |                       |                  |
| Bone Marrow          |                 | Pigmentation          | Minimal          |
| Brain                |                 | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 9-5,10-5 |                       |                  |
| Heart                |                 | Cardiomyopathy        | Mild             |
|                      |                 | Leukemia Mononuclear  |                  |
| Intestine Small      | Duodenum        | Pigmentation          | Minimal          |
| Kidney               |                 | Leukemia Mononuclear  |                  |
|                      |                 | Nephropathy           | Minimal          |
|                      | Renal Tubule    | Pigmentation          | Minimal          |
| Liver                |                 | Basophilic Focus      |                  |
|                      |                 | Fatty Change          | Focal, Minimal   |
|                      |                 | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 8-3      | Pigmentation          | Minimal          |
| Lung                 |                 | Leukemia Mononuclear  |                  |
| Note: LEUKEMIA MONUC | TGLs = 2-1+2    |                       |                  |
| Lymph Node           | Mesenteric      | Infiltration Cellular | Histiocyte, Mild |
|                      | Mandibular      | Leukemia Mononuclear  |                  |
|                      | Mesenteric      | Pigmentation          | Mild             |
| Note: LEUKEMIA MONUC | TGLs = 1-9      |                       |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 229 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 748 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |               |                                  |          |
|---|---------------|----------------------------------|----------|
| Ovary   |               | Leukemia Mononuclear             |          |
| Pituitary Gland                                   | Pars Distalis | Hyperplasia                      | Mild     |
|   |               | Leukemia Mononuclear             |          |
| Note: [ HYPERPLASIA ] TGLs = 11-8                 |               |                                  |          |
| Spleen  |               | Hematopoietic Cell Proliferation | Mild     |
|   |               | Leukemia Mononuclear             |          |
| [ Hematopoietic Cell Proliferation TGLS = 5-3.1 ] |               |                                  |          |
| Stomach   | Forestomach   | Acanthosis                       | Mild     |
|   | Glandular     | Fibrosis                         | Minimal  |
|   | Glandular     | Metaplasia                       | Minimal  |
|   | Fat           | Proliferation                    | Moderate |
| Thymus  |               | Pigmentation                     | Minimal  |
| Thyroid Gland                                     | C Cell        | Adenoma                          |          |
| Uterus  |               | Polyp Stromal                    |          |
| Note: TGL #4 PROBABLY REFERS TO STROMAL POLYP     |               |                                  |          |
| Note: POLYP STROMAL TGLs = 4-6                    |               |                                  |          |
| Note: VAGINA LINED BY MUCINOUS EPITHELIUM.        |               |                                  |          |

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PRIMARY CAUSE OF DEATH -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 230

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Bone                    | Bone Marrow               | Brain                   |
| Clitoral Gland           | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Nose                     | Ovary                   | Pancreas                  | Parathyroid Gland       |
| Salivary Glands          | Skin                    | Stomach - Forestomach     | Thyroid Gland           |
| Urinary Bladder          | Uterus                  |                           |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|  |               |                         |                        |
|--|---------------|-------------------------|------------------------|
| Adrenal Gland                          | Medulla       | Pheochromocytoma Benign |                        |
| Eye                                    | Lens          | Cataract                | Mild                   |
| Note: CATARACT                         | TGLs = 1-13   |                         |                        |
| Harderian Gland                        |               | Pigmentation            | Minimal                |
| Heart                                  |               | Cardiomyopathy          | Mild                   |
| Intestine Small                        | Duodenum      | Pigmentation            | Minimal                |
| Kidney                                 |               | Nephropathy             | Mild                   |
|  | Renal Tubule  | Pigmentation            | Minimal                |
| Liver                                  |               | Basophilic Focus        |                        |
|  |               | Clear Cell Focus        |                        |
|  |               | Inflammation            | Granulomatous, Minimal |
|  |               | Pigmentation            | Minimal                |
| Lung                                   |               | Infiltration Cellular   | Histiocyte, Mild       |
|  |               | Inflammation            | Acute, Minimal         |
|  |               | Pigmentation            | Minimal                |
| [ Infiltration Cellular TGLS = 2-1+2 ] |               |                         |                        |
| Lymph Node                             | Mesenteric    | Infiltration Cellular   | Histiocyte, Mild       |
|  | Mandibular    | Pigmentation            | Minimal                |
|  | Mesenteric    | Pigmentation            | Mild                   |
| Pituitary Gland                        | Pars Distalis | Hyperplasia             | Minimal                |
| Spleen                                 |               | Infiltration Cellular   | Histiocyte, Minimal    |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 230

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 744

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|         |           |               |                      |
|---------|-----------|---------------|----------------------|
| Stomach | Glandular | Pigmentation  | Hemosiderin, Mild    |
|         | Glandular | Pigmentation  | Mild                 |
|         | Glandular | Fibrosis      | Mild                 |
|         | Glandular | Hyperplasia   | Minimal              |
|         | Glandular | Metaplasia    | Mild                 |
| Thymus  | Fat       | Pigmentation  | Minimal              |
|         |           | Proliferation | Moderate             |
| Trachea |           | Pigmentation  | Mild                 |
|         |           | Inflammation  | Chronic Active, Mild |

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 231

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 743

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Terminal Sacrifice

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                          |                         |                           |                         |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Adrenal Gland - Cortex   | Adrenal Gland - Medulla | Bone                      | Brain                   |
| Clitoral Gland           | Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon |
| Intestine Large - Rectum | Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      |
| Nose                     | Parathyroid Gland       | Salivary Glands           | Skin                    |
| Thyroid Gland            | Trachea                 | Urinary Bladder           |                         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|   |              |                       |                      |
|---|--------------|-----------------------|----------------------|
| Bone Marrow                                 |              | Pigmentation          | Minimal              |
| Heart                                       |              | Cardiomyopathy        | Mild                 |
| Intestine Small                             | Duodenum     | Pigmentation          | Minimal              |
| Kidney                                      |              | Nephropathy           | Minimal              |
|   | Renal Tubule | Pigmentation          | Mild                 |
| Liver                                       |              | Basophilic Focus      |                      |
|   |              | Inflammation          | Granulomatous, Mild  |
|   |              | Pigmentation          | Minimal              |
| Note: MESENTERIC FAT ADHERENT TO THE LIVER. |              |                       |                      |
| Lung  |              | Infiltration Cellular | Histiocyte, Minimal  |
|   |              | Pigmentation          | Minimal              |
| Lymph Node                                  | Mediastinal  | Infiltration Cellular | Histiocyte, Mild     |
|   | Mesenteric   | Infiltration Cellular | Histiocyte, Mild     |
|   | Mandibular   | Pigmentation          | Minimal              |
|   | Mediastinal  | Pigmentation          | Mild                 |
|   | Mesenteric   | Pigmentation          | Mild                 |
|   | Pancreatic   | Pigmentation          | Mild                 |
| Mesentery                                   | Fat          | Inflammation          | Chronic Active, Mild |
| Note: MESENTERY ATTACHED TO LIVER           |              |                       |                      |
| Note: INFLAMMATION TGLs = 3-3               |              |                       |                      |
| Ovary                                       |              | Cyst                  |                      |
| Note: CYST TGLs = 1-6                       |              |                       |                      |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 231 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 743 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                                  |               |                       |                   |
|----------------------------------|---------------|-----------------------|-------------------|
| Pancreas                         | Acinus        | Hyperplasia           | Mild              |
| Pituitary Gland                  | Pars Distalis | Hyperplasia           | Mild              |
| Note: [ HYPERPLASIA ] TGLs = 4-8 |               |                       |                   |
| Spleen                           |               | Infiltration Cellular | Histiocyte, Mild  |
|                                  |               | Pigmentation          | Hemosiderin, Mild |
|                                  |               | Pigmentation          | Mild              |
| Stomach                          | Forestomach   | Acanthosis            | Mild              |
|                                  | Glandular     | Fibrosis              | Mild              |
|                                  | Forestomach   | Hyperkeratosis        | Mild              |
|                                  | Glandular     | Metaplasia            | Minimal           |
|                                  | Glandular     | Pigmentation          | Minimal           |
|                                  | Fat           | Proliferation         | Mild              |
| Thymus                           |               | Pigmentation          | Mild              |
| Uterus                           | Bilateral     | Polyp Stromal         |                   |
| Note: POLYP STROMAL TGLs = 2-6   |               |                       |                   |
| PRIMARY CAUSE OF DEATH           | -             |                       |                   |

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

ANIMAL ID: 232

TRT#: 6

SEX: Female

DAY ON TEST: 748

DOSE: 0.05 G/KG 79 HF

DISP: Terminal Sacrifice

HISTO:

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                    | Brain                    |
| Clitoral Gland          | Esophagus                 | Eye                     | Harderian Gland          |
| Heart                   | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Ovary                    |
| Pancreas                | Parathyroid Gland         | Salivary Glands         | Stomach - Forestomach    |
| Thymus                  | Thyroid Gland             | Trachea                 | Urinary Bladder          |
| Uterus                  |                           |                         |                          |

MISSING

Skin

OBSERVATIONS

|                                       |              |                       |                        |
|---------------------------------------|--------------|-----------------------|------------------------|
| Bone Marrow                           |              | Pigmentation          | Minimal                |
| Intestine Small                       | Duodenum     | Pigmentation          | Minimal                |
| Kidney                                |              | Nephropathy           | Minimal                |
|                                       | Renal Tubule | Pigmentation          | Minimal                |
| Liver                                 |              | Basophilic Focus      |                        |
|                                       |              | Fatty Change          | Focal, Minimal         |
|                                       |              | Inflammation          | Granulomatous, Minimal |
|                                       |              | Leukemia Mononuclear  |                        |
|                                       |              | Pigmentation          | Minimal                |
| Note: LEUKEMIA MONUC TGLs = 12-3,13-3 |              |                       |                        |
| Lung                                  |              | Infiltration Cellular | Histiocyte, Minimal    |
|                                       |              | Pigmentation          | Minimal                |
| Note: INFILTRAT CELL TGLs = 5-1+2     |              |                       |                        |
| Lymph Node                            | Mesenteric   | Infiltration Cellular | Histiocyte, Minimal    |
|                                       | Pancreatic   | Infiltration Cellular | Histiocyte, Moderate   |
|                                       | Mandibular   | Pigmentation          | Minimal                |
|                                       | Mesenteric   | Pigmentation          | Mild                   |
|                                       | Pancreatic   | Pigmentation          | Moderate               |
| Note: INFILTRAT CELL TGLs = 9-9       |              |                       |                        |
| Mammary Gland                         |              | Fibroadenoma          |                        |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                                 |                         |
|-----------------------|------------------------------|---------------------------------|-------------------------|
| <b>ANIMAL ID:</b> 232 | <b>TRT#:</b> 6               | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 748 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|                    |                    |                                  |                   |
|--------------------|--------------------|----------------------------------|-------------------|
| Note: FIBROADENOMA | TGLs = 14-14       |                                  |                   |
| Nose               |                    | Inflammation                     | Acute, Moderate   |
| Pituitary Gland    | Pars Distalis      | Adenoma                          |                   |
|                    | Pars Distalis      | Angiectasis                      | Moderate          |
|                    | Pars Distalis      | Hyperplasia                      | Mild              |
| Note: ADENOMA      | TGLs = 16-8        |                                  |                   |
| Spleen             |                    | Angiectasis                      | Mild              |
|                    |                    | Hematopoietic Cell Proliferation | Mild              |
|                    |                    | Leukemia Mononuclear             |                   |
|                    |                    | Pigmentation                     | Hemosiderin, Mild |
|                    |                    | Pigmentation                     | Minimal           |
| Note: ANGIECTASIS  | TGLs = 7-3.1,8-3.1 |                                  |                   |
| Stomach            | Glandular          | Fibrosis                         | Mild              |
|                    | Glandular          | Metaplasia                       | Mild              |
|                    | Glandular          | Pigmentation                     | Minimal           |
|                    | Fat                | Proliferation                    | Mild              |

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05047-01

Test Type: CHRONIC

Route: GAVAGE

Species/Strain: Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Titanocene dichloride

CAS Number: 1271-19-8

Date Report Requested: 10/20/2014

Time Report Requested: 06:16:29

First Dose M/F: NA / NA

Lab: TSI MASON

**ANIMAL ID:** 234

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 471

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Intestine Large - Rectum  
Liver  
Nose  
Pituitary Gland  
Thymus  
Uterus

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Small - Ileum  
Lung  
Ovary  
Salivary Glands  
Thyroid Gland

Bone  
Esophagus  
Islets, Pancreatic  
Lymph Node - Mandibular  
Pancreas  
Skin  
Trachea

Bone Marrow  
Heart  
Kidney  
Mammary Gland  
Parathyroid Gland  
Stomach - Forestomach  
Urinary Bladder

**AUTO PRECLUDES DIAG.**

Intestine Large - Cecum

Intestine Small - Duodenum

Intestine Small - Jejunum

**OBSERVATIONS**

Intestine Large  
Lymph Node

Colon  
Mediastinal  
Mesenteric

Parasite  
Infiltration Cellular  
Infiltration Cellular

Minimal  
Histiocyte, Mild  
Histiocyte, Mild

Note: INFILTRAT CELL TGLs = 1-1

Spleen  
Stomach

Glandular

Infiltration Cellular  
Fibrosis

Histiocyte, Moderate  
Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 235

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 485

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                           |                          |                            |                         |
|---------------------------|--------------------------|----------------------------|-------------------------|
| Adrenal Gland - Cortex    | Adrenal Gland - Medulla  | Bone                       | Bone Marrow             |
| Brain                     | Esophagus                | Eye                        | Intestine Large - Cecum |
| Intestine Large - Colon   | Intestine Large - Rectum | Intestine Small - Duodenum | Intestine Small - Ileum |
| Intestine Small - Jejunum | Islets, Pancreatic       | Kidney                     | Lung                    |
| Lymph Node - Mandibular   | Nose                     | Ovary                      | Pancreas                |
| Parathyroid Gland         | Pituitary Gland          | Salivary Glands            | Skin                    |
| Thymus                    | Thyroid Gland            | Trachea                    | Urinary Bladder         |

**MISSING**

Mammary Gland

**OBSERVATIONS**

|   |                 |                                  |                  |
|---|-----------------|----------------------------------|------------------|
| Bone Marrow   |                 |                                  |                  |
| Note: HAVE SPILLED INTO STERNEBRA AND SKELETAL MUSCLE |                 |                                  |                  |
| Note: MORE LIKE LEUKEMOID REACTION. NEUTROPHILS       |                 |                                  |                  |
| Clitoral Gland  |                 | Adenoma                          |                  |
| Note: ADENOMA   | TGLs = 4,7-10.1 |                                  |                  |
| Heart   |                 | Cardiomyopathy                   | Mild             |
| Liver   |                 | Basophilic Focus                 |                  |
| Note: PIGMENT IN PORTAL RADICLES                      |                 |                                  |                  |
| Note: [ BASOPH FOCUS ] TGLs = 12-3                    |                 |                                  |                  |
| Lymph Node  | Renal           | Angiectasis                      | Mild             |
|   | Lumbar          | Degeneration                     | Cystic, Mild     |
|   | Pancreatic      | Hematopoietic Cell Proliferation | Mild             |
|   | Mediastinal     | Infiltration Cellular            | Histiocyte, Mild |
|   | Mesenteric      | Infiltration Cellular            | Histiocyte, Mild |
|   | Pancreatic      | Infiltration Cellular            | Histiocyte, Mild |
|   | Renal           | Infiltration Cellular            | Histiocyte, Mild |
|   | Mediastinal     | Pigmentation                     | Minimal          |
|   | Mesenteric      | Pigmentation                     | Mild             |
| Note: HEMA CELL PROL TGLs = 16-9                      |                 |                                  |                  |
| Note: DEGEN TGLs = 19-4                               |                 |                                  |                  |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

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|                       |                              |                       |                         |
|-----------------------|------------------------------|-----------------------|-------------------------|
| <b>ANIMAL ID:</b> 235 | <b>TRT#:</b> 6               | <b>SEX:</b> Female    | <b>DAY ON TEST:</b> 485 |
|                       | <b>DOSE:</b> 0.05 G/KG 79 HF | <b>DISP:</b> Moribund | <b>HISTO:</b>           |

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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|   |             |                                  |          |
|---|-------------|----------------------------------|----------|
| Note: INFILTRAT CELL TGLs = 5-9,15-8,18-1 |             |                                  |          |
| Spleen                                    |             | Hematopoietic Cell Proliferation | Moderate |
| Note: HEMA CELL PROL TGLs = 10-3          |             |                                  |          |
| Stomach                                   | Forestomach | Acanthosis                       | Minimal  |
|   | Glandular   | Fibrosis                         | Mild     |
|   | Forestomach | Hyperkeratosis                   | Minimal  |
|   | Glandular   | Hyperplasia                      | Mild     |
|   | Glandular   | Metaplasia                       | Mild     |
| Note: AREAS OF INTESTINAL METAPLASIA      |             |                                  |          |
| Uterus                                    |             | Cyst                             |          |
|   |             | Decidual Reaction                | Minimal  |
| Note: CYST TGLs = 13-6                    |             |                                  |          |
| Note: [ DECIDUAL REACT ] TGLs = 14-6.1    |             |                                  |          |

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**PRIMARY CAUSE OF DEATH** -  
**Animal Note:** GENERALIZED LEUKEMOID REACTION

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 236

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 247

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Dead

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

Adrenal Gland - Cortex  
Brain  
Intestine Large - Colon  
Intestine Small - Jejunum  
Mammary Gland  
Pituitary Gland  
Stomach - Glandular  
Urinary Bladder

Adrenal Gland - Medulla  
Clitoral Gland  
Intestine Large - Rectum  
Islets, Pancreatic  
Nose  
Salivary Glands  
Thymus  
Uterus

Bone  
Esophagus  
Intestine Small - Duodenum  
Kidney  
Ovary  
Skin  
Thyroid Gland

Bone Marrow  
Intestine Large - Cecum  
Intestine Small - Ileum  
Lymph Node - Mandibular  
Pancreas  
Stomach - Forestomach  
Trachea

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

Heart  
Liver  
Lung

Cardiomyopathy  
Pigmentation  
Congestion  
Edema  
Infiltration Cellular  
Inflammation  
Pigmentation

Mild  
Minimal  
Moderate  
Mild  
Histiocyte, Mild  
Granulomatous, Mild  
Mild

[ Congestion TGLS = 3-1+2 ]

Lymph Node

Mesenteric  
Mediastinal

Infiltration Cellular  
Pigmentation

Histiocyte, Mild  
Minimal

Note: PIGMENT TGLs = 2-2

Spleen

Hematopoietic Cell Proliferation  
Pigmentation  
Pigmentation

Mild  
Minimal  
Hemosiderin, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Titanocene dichloride  
**CAS Number:** 1271-19-8

**Date Report Requested:** 10/20/2014  
**Time Report Requested:** 06:16:29  
**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 237

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 344

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

|                         |                           |                         |                          |
|-------------------------|---------------------------|-------------------------|--------------------------|
| Adrenal Gland - Cortex  | Adrenal Gland - Medulla   | Bone                    | Clitoral Gland           |
| Esophagus               | Intestine Large - Cecum   | Intestine Large - Colon | Intestine Large - Rectum |
| Intestine Small - Ileum | Intestine Small - Jejunum | Islets, Pancreatic      | Mammary Gland            |
| Nose                    | Ovary                     | Pancreas                | Pituitary Gland          |
| Salivary Glands         | Skin                      | Thyroid Gland           | Trachea                  |
| Urinary Bladder         | Uterus                    |                         |                          |

**MISSING**

Parathyroid Gland

**OBSERVATIONS**

|                                     |             |                       |                     |
|-------------------------------------|-------------|-----------------------|---------------------|
| Bone Marrow                         |             | Pigmentation          | Minimal             |
| Brain                               |             | Leukemia Mononuclear  |                     |
| Note: LEUKEMIA MONUC TGLs = 7-5,8-5 |             |                       |                     |
| Heart                               |             | Leukemia Mononuclear  |                     |
| Intestine Small                     | Duodenum    | Pigmentation          | Minimal             |
| Kidney                              |             | Leukemia Mononuclear  |                     |
| Liver                               |             | Fatty Change          | Focal, Minimal      |
|                                     |             | Leukemia Mononuclear  |                     |
|                                     |             | Pigmentation          | Minimal             |
| [ Pigmentation TGLS = 5-3 ]         |             |                       |                     |
| Lung                                |             | Leukemia Mononuclear  |                     |
| Note: LEUKEMIA MONUC TGLs = 2-1+2   |             |                       |                     |
| Lymph Node                          | Mediastinal | Infiltration Cellular | Histiocyte, Minimal |
|                                     | Mandibular  | Pigmentation          | Minimal             |
|                                     | Mediastinal | Pigmentation          | Minimal             |
|                                     | Mesenteric  | Pigmentation          | Mild                |
| Note: PIGMENT TGLs = 1-9,6-8        |             |                       |                     |
| Spleen                              |             | Leukemia Mononuclear  |                     |
| [ Leukemia Mononuclear TGLS = 3-3 ] |             |                       |                     |
| Stomach                             | Forestomach | Acanthosis            | Minimal             |
|                                     | Glandular   | Fibrosis              | Mild                |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05047-01  
**Test Type:** CHRONIC  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
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**First Dose M/F:** NA / NA  
**Lab:** TSI MASON

**ANIMAL ID:** 237

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 344

**DOSE:** 0.05 G/KG 79 HF

**DISP:** Moribund

**HISTO:**

**ORGAN AND ACCOUNTABLE SITE STATUS**

|        |             |                |             |
|--------|-------------|----------------|-------------|
|        | Forestomach | Hyperkeratosis | Mild        |
|        | Glandular   | Hyperplasia    | Minimal     |
|        | Glandular   | Inflammation   | Acute, Mild |
|        | Glandular   | Metaplasia     | Minimal     |
|        | Fat         | Proliferation  | Mild        |
| Thymus |             | Pigmentation   | Minimal     |

PRIMARY CAUSE OF DEATH

-

**\*\* END OF REPORT \*\***