

Experiment Number: 20403 - 01
Test Type: CHRONIC
Route: DOSED FEED
Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic
CAS Number: 5263-02-5

Date Report Requested: 05/25/2016
Time Report Requested: 10:06:20
First Dose M/F: 09/03/09 / 09/04/09
Lab: BAT

F1 Rev.1_HSD

NTP Study Number: C20403
Lock Date: 04/05/2013
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 3.0.2.3_002
PWG Approval Date: 09/08/2015

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Zinc Carbonate, Basic

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 1

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101802

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------------------------|--------------|-----------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Ectasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 1-14] | | | |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Marked |

* PROTOCOL REQUIRED TISSUE

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 2

TRT#: 3

SEX: Male

DAY ON TEST: 698

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101803

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Esophagus
- * Intestine Large, Rectum
- * Nose
- * Preputial Gland
- * Stomach, Forestomach
- * Trachea
- * Bone
- * Harderian Gland
- * Islets, Pancreatic
- * Pancreas
- * Prostate
- * Stomach, Glandular
- * Urinary Bladder
- * Brain
- * Intestine Large, Cecum
- * Liver
- * Parathyroid Gland
- * Salivary Glands
- * Testes
- * Epididymis
- * Intestine Large, Colon
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Thyroid Gland

AUTO PRECLUDES DIAG.

- * Intestine Small, Duodenum
- * Intestine Small, Ileum
- * Intestine Small, Jejunum

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
- Note: Inflammation affects testes.
- * Bone Marrow
- * Eye
- * Heart
- * Kidney
[Nephropathy TGLs = 2-5]
- * Lung
- * Lymph Node, Mandibular
- * Mammary Gland
[Fibroadenoma TGLs = 1-14]
- * Skin
[Fibroma TGLs = 1-14]
- * Spleen
- * Thymus
- Aorta
- Bilateral, Cornea
Cornea
- Subcut Tiss
- Lymph Follic
- Hyperplasia
- Inflammation
- Mineralization
- Atrophy
- Inflammation
- Ulcer
- Cardiomyopathy
- Nephropathy
- Infiltration Cellular
- Inflammation
- Atrophy
- Fibroadenoma
- Fibroma
- Atrophy
- Pigmentation
- Atrophy
- Mild
- Mild
- Mild
- Moderate
- Acute, Mild
- Mild
- Mild
- Marked
- Histiocyte, Marked
- Mild
- Mild
- Marked
- Moderate
- Hemosiderin, Moderate
- Marked

* PROTOCOL REQUIRED TISSUE

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 2

TRT#: 3

SEX: Male

DAY ON TEST: 698

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101803

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

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Lab: BAT

ANIMAL ID: 3

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101804

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* 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
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Glandular	* Trachea
* Urinary Bladder			

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Mild
* Adrenal Medulla	Bilateral	Hyperplasia	Mild
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
* Nose		Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Pigmentation	Hemosiderin, Moderate
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal
* Testes	Interstitial Cell	Adenoma	
	Germinal Epith	Atrophy	Marked
	[Adenoma TGLs = 2-14]		
	[Atrophy TGLs = 1-11]		
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Hyperplasia	Marked

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Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 4

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101805

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------------|---------------|----------------------------------|----------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| [Inflammation TGLs = 1-11] | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| [Adenoma TGLs = 2,3-14+15] | | | |
| [Hyperplasia TGLs = 4-15] | | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

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Lab: BAT

ANIMAL ID: 5

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101806

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---|--------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes and rectum affected.
[Inflammation TGLs = 3,4-11+16] | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| Note: TGL 2 described as multiple nodules per IANR.
[Adenoma TGLs = 2-15]
[Hyperplasia TGLs = 2-15] | | | |
| * Skin | Subcut Tiss | Lipoma | |
| [Lipoma TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

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Lab: BAT

ANIMAL ID: 5

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101806

ORGAN AND ACCOUNTABLE SITE STATUS

* Thyroid Gland

C Cell

Adenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 6

TRT#: 3

SEX: Male

DAY ON TEST: 467

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101807

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|---------------------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Testes | Bilateral, Germinal Epith | Atrophy | Mild |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 7

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101808

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Cortex
Blood Vessel
Note: Testes affected
- * Heart
* Kidney
* Liver
* Lung
[Infiltration Cellular TGLs = 3-3+4]
- * Pancreas
[Adenoma TGLs = 2-15]
[Hyperplasia TGLs = 2-6]
- * Pituitary Gland
* Spleen
- * Testes
[Dilation TGLs = 1-14]
- * Thymus
- Endocardium
- Schwannoma Malignant
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Acinus
- Acinus
- Pars Distalis
- Seminif Tub
- Vacuolization Cytoplasmic
- Inflammation
- Adenoma
- Hyperplasia
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Dilation
- Atrophy
- Minimal
- Minimal
- Mild
- Histiocyte, Moderate
- Multiple
- Minimal
- Minimal
- Mild
- Hemosiderin, Mild
- Moderate
- Mild

* PROTOCOL REQUIRED TISSUE

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Species/Strain: RATS/HSD

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 8

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101809

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|----------------------------------|----------------------------------|-------------------|
| Blood Vessel | Inflammation | Mild |
| Note: Testes and cecum affected. | | |
| * Heart | Cardiomyopathy | Mild |
| * Kidney | Nephropathy | Mild |
| * Liver | Clear Cell Focus | |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia |
| | | Mild |

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Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 9

TRT#: 3

SEX: Male

DAY ON TEST: 715

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101810

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone
- * Esophagus
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Duodenum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Skin
- * Stomach, Glandular
- * Testes
- * Urinary Bladder
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Nose
- * Seminal Vesicle
- * Trachea

OBSERVATIONS

- Blood Vessel Inflammation Minimal
Note: Testes affected.
- * Bone Marrow Hyperplasia Mild
- * Brain Cerebrum Gliosis Mild
- * Heart Epicardium Cardiomyopathy Mild
Paraganglioma
- Note: Proliferation in aortic body.
- * Kidney Nephropathy Moderate
[Nephropathy TGLs = 4-5]
- * Liver Basophilic Focus
- * Lung Infiltration Cellular Mild
[Infiltration Cellular TGLs = 5-3+4]
- * Lymph Node, Mandibular Infiltration Cellular Plasma Cell, Mild
- * Mammary Gland Fibroadenoma
- [Fibroadenoma TGLs = 1-14]
- * Pancreas Acinus Adenoma Multiple
[Adenoma TGLs = 2,3,7,8-15+16]
- * Parathyroid Gland Hyperplasia Mild
- * Pituitary Gland Pars Distalis Hyperplasia Marked
[Hyperplasia TGLs = 6-8]
- * Spleen Hematopoietic Cell Proliferation Mild
Lymph Follic Hyperplasia Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

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Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

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Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 9

TRT#: 3

SEX: Male

DAY ON TEST: 715

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101810

ORGAN AND ACCOUNTABLE SITE STATUS

* Stomach, Forestomach

* Thymus

* Thyroid Gland

C Cell

Pigmentation

Squamous Cell Carcinoma

Atrophy

Hyperplasia

Hemosiderin, Minimal

Mild

Mild

PRIMARY CAUSE OF DEATH

- Mammary Gland Fibroadenoma

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First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 10

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101811

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|---|-------------------|----------------------------------|-------------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Eye | Bilateral, Cornea | Inflammation | Chronic Active, Minimal |
| * Heart | | Cardiomyopathy | Mild |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| Mesentery | | Paraganglioma | |
| [Paraganglioma TGLs = 3-16] | | | |
| * Pancreas | Acinus | Adenoma | Multiple |
| [Adenoma TGLs = 1,2,4,5-14+15+17] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | | Squamous Cell Carcinoma | |
| [Squamous Cell Carcinoma TGLs = 6-18] | | | |
| * Thymus | | Atrophy | Minimal |

* PROTOCOL REQUIRED TISSUE

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Species/Strain: RATS/HSD

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Zinc Carbonate, Basic

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Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 11

TRT#: 3

SEX: Male

DAY ON TEST: 649

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101812

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Blood Vessel
- * Bone Marrow
- * Brain
- * Epididymis
- * Eye
- * Harderian Gland
- * Heart
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Duodenum
- * Intestine Small, Jejunum
- * Liver
- * Lung
- * Nose
- * Parathyroid Gland
- * Pituitary Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Stomach, Glandular
- * Testes
- * Thyroid Gland
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Stomach, Forestomach
- * Trachea

MISSING

- * Mammary Gland
- * Thymus

OBSERVATIONS

- * Islets, Pancreatic
- * Kidney
- * Lymph Node, Mandibular
- * Pancreas
- * Skin
- * Spleen
- Atrophy
- Nephropathy
- Hyperplasia
- Adenoma
- Fibrosarcoma
- Hematopoietic Cell Proliferation
- Moderate
- Mild
- Mild
- Multiple
- Mild

[Fibrosarcoma TGLs = 1,2-14+15]

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibrosarcoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 12

TRT#: 3

SEX: Male

DAY ON TEST: 708

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101813

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* 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	* Liver	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

MISSING

* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Mild
* Adrenal Medulla	Bilateral	Hyperplasia	Mild
Blood Vessel		Inflammation	Mild
Note: Pancreas and testes affected.			
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Marked
[Nephropathy	TGLs = 4-5+17]		
* Lung		Inflammation	Moderate
[Inflammation	TGLs = 7-3+4]		
Lymph Node	Pancreatic	Hemorrhage	Mild
	Mediastinal	Hemorrhage	Moderate
[Hemorrhage	TGLs = 2-15]		
[Hemorrhage	TGLs = 5-18]		
* Pancreas	Acinus	Adenoma	
	Acinus	Hyperplasia	Moderate
[Adenoma	TGLs = 3-16]		
[Hyperplasia	TGLs = 3-6]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Skin	Hair Follicle	Hyperplasia	Marked
[Hyperplasia	TGLs = 1-14]		

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 12

TRT#: 3

SEX: Male

DAY ON TEST: 708

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101813

ORGAN AND ACCOUNTABLE SITE STATUS

* Spleen

Hematopoietic Cell Proliferation

Mild

Pigmentation

Hemosiderin, Mild

* Thymus

Atrophy

Moderate

* Thyroid Gland

C Cell

Adenoma

[Adenoma TGLs = 6-19]

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 13

TRT#: 3

SEX: Male

DAY ON TEST: 735

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101814

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 3-16] | | |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Testes | Bilateral, Germinal Epith | Atrophy | Marked |
| | [Atrophy TGLs = 2-11+15] | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 14

TRT#: 3

SEX: Male

DAY ON TEST: 735

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101815

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Pheochromocytoma Complex | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 15

TRT#: 3

SEX: Male

DAY ON TEST: 735

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101816

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------------------------------|-------------------------|----------------------------------|-------------------|
| Blood Vessel | | Inflammation | Mild |
| Note: Testes and rectum affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| | [Adenoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 16

TRT#: 3

SEX: Male

DAY ON TEST: 735

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101817

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--|---------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| [Adenoma TGLs = 1,2,3,4,5-14+15+16+17] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 17

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101818

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-----------------------------|---------------|----------------------------------|---------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Skin | | Cyst Epithelial Inclusion | |
| [Cyst Epithelial Inclusion | TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 18

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101819

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|---------------------|--|-----------------------|-------------------|
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Hyperplasia | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 19

TRT#: 3

SEX: Male

DAY ON TEST: 505

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101820

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Liver	* Lung	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	Peripheral Nerve
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Lymph Node, Mandibular		Hyperplasia	Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
Spinal Cord	Axon	Degeneration	Mild
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Mild
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal
* Testes	Bilateral, Germinal Epith	Atrophy	Minimal
		Mineralization	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

PRIMARY CAUSE OF DEATH - Spinal Cord Axon Degeneration

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 20

TRT#: 3

SEX: Male

DAY ON TEST: 735

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101821

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-----------------------------|------------|------------------|-------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Kidney | | Infarct | Chronic, Mild |
| | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Skin | Epidermis | Hyperplasia | Marked |
| [Hyperplasia TGLs = 1-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Testes | | Edema | Marked |
| [Edema TGLs = 2-11] | | | |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 21

TRT#: 3

SEX: Male

DAY ON TEST: 708

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101822

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla: Hyperplasia (Minimal)
- Blood Vessel: Inflammation (Minimal)
- Note: Testes affected. [Inflammation TGLs = 2-11]
- * Brain: Cerebrum (Oligodendroglioma Malignant)
- * Eye: Cornea (Inflammation - Acute, Mild)
- * Heart: Cardiomyopathy (Mild)
- * Kidney: Nephropathy (Moderate)
- * Lung: Infiltration Cellular (Histiocyte, Minimal) [Infiltration Cellular TGLs = 5-3+4]
- * Pancreas: Acinus (Adenoma - Multiple) [Adenoma TGLs = 3,4-15+16]
- * Pituitary Gland: Pars Intermed (Hyperplasia - Moderate)
- * Skin: Subcut Tiss (Lipoma)
- [Lipoma TGLs = 1-14]
- * Spleen: Lymph Follic (Hyperplasia - Mild)
- (Pigmentation - Hemosiderin, Moderate)
- * Thymus: Atrophy (Mild)

PRIMARY CAUSE OF DEATH - Brain Cerebrum Oligodendroglioma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 22

TRT#: 3

SEX: Male

DAY ON TEST: 504

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101823

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* 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	* Liver
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Bone Marrow		Hyperplasia	Minimal
* Eye		Atrophy	Marked
		Cataract	Moderate
	[Atrophy TGLs = 2-15]		
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Skin	Subcut Tiss	Fibroma	
	[Fibroma TGLs = 1-14]		
* Spleen		Hematopoietic Cell Proliferation	Mild
	Lymph Follic	Hyperplasia	Mild
		Pigmentation	Hemosiderin, Minimal
* Testes	Bilateral, Germinal Epith	Atrophy	Moderate
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Hyperplasia	Marked

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 23

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101824

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal 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	* Liver	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Mild
Blood Vessel		Inflammation	Minimal
Note: Testes affected.			
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Adenoma	
* Kidney		Nephropathy	Moderate
* Pancreas	Acinus	Hyperplasia	Moderate
	Duct	Hyperplasia	Cystic, Mild
[Hyperplasia TGLs = 1-14]			
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Minimal
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Hyperplasia	Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 24

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101825

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* 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	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Mild
* Pancreas	Acinus	Hyperplasia	Mild
	[Hyperplasia TGLs = 1-14]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Hematopoietic Cell Proliferation	Mild
		Pigmentation	Hemosiderin, Mild
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal
* Testes	Germinal Epith	Atrophy	Minimal
* Thymus		Atrophy	Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 25

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101826

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected.
- * Heart
- * Kidney
- * Liver
- * Lung
[Infiltration Cellular TGLs = 1-3+4]
- * Pancreas
Acinus
Acinus
Note: TGL 2 described as multiple nodules per IANR.
[Adenoma TGLs = 2-14]
[Hyperplasia TGLs = 2-14]
- * Pituitary Gland
- * Spleen
- * Thymus
- * Thyroid Gland
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Adenoma
- Hyperplasia
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Carcinoma
- Minimal
- Minimal
- Minimal
- Mild
- Histiocyte, Mild
- Moderate
- Minimal
- Minimal
- Hemosiderin, Minimal
- Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 26

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101827

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|------------------------------|---------------|----------------------------------|----------------------|
| * Adrenal Medulla | Bilateral | Pheochromocytoma Malignant | |
| [Pheochromocytoma Malignant | TGLs = 2-8] | | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Hyperplasia | Mild |
| [Hyperplasia | TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 27

TRT#: 3

SEX: Male

DAY ON TEST: 663

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101828

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|----------------------|--------------------------------------|----------------------|---------|
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Leukemia Mononuclear | |
| | | Nephropathy | Minimal |
| * Liver | | Leukemia Mononuclear | |
| * Lung | | Leukemia Mononuclear | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| | | Leukemia Mononuclear | |
| * Spleen | | Leukemia Mononuclear | |
| | [Leukemia Mononuclear TGLs = 1-14] | | |
| * Testes | Bilateral, Germinal Epith | Atrophy | Mild |
| * Thymus | | Leukemia Mononuclear | |

PRIMARY CAUSE OF DEATH - Spleen Leukemia Mononuclear

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 28

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101829

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Medulla		Hyperplasia Pheochromocytoma Benign	Mild
	[Pheochromocytoma Benign TGLs = 1-8]		
* Heart		Cardiomyopathy	Mild
* Kidney		Infarct	Chronic, Mild
		Nephropathy	Mild
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[Infiltration Cellular TGLs = 3-3+4]		
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Pancreas	Acinus	Adenoma	
	Acinus	Hyperplasia	Moderate
	Note: TGL 2 described as multiple nodules per IANR.		
	[Adenoma TGLs = 2-14]		
	[Hyperplasia TGLs = 2-14]		
* Pituitary Gland	Pars Distalis	Adenoma	
	[Adenoma TGLs = 4-15]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Moderate
* Stomach, Forestomach	Epithelium	Hyperplasia	Moderate
* Thymus		Atrophy	Moderate

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 29

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101830

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected.
- * Kidney
[Cyst TGLs = 4-5]
- * Liver
- * Lung
- * Pancreas
Acinus
Acinus
Note: TGL 2 is described as multiple nodules per IANR.
[Adenoma TGLs = 1,2-14+15]
[Hyperplasia TGLs = 2-15]
- * Pituitary Gland
[Adenoma TGLs = 5-8]
- * Skin
[Hyperplasia TGLs = 3-16]
- * Spleen
- * Thymus
- * Thyroid Gland
- Hyperplasia
- Inflammation
- Cyst
- Nephropathy
- Clear Cell Focus
- Alveolar/Bronchiolar Adenoma
- Adenoma
- Hyperplasia
- Adenoma
- Hyperplasia
- Hematopoietic Cell Proliferation
- Atrophy
- Hyperplasia
- Mild
- Minimal
- Moderate
- Moderate
- Multiple
- Moderate
- Marked
- Minimal
- Moderate
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 30

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101831

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------|-------------------------------------|-----------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Leukemia Mononuclear | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Leukemia Mononuclear | |
| | | Pigmentation | Hemosiderin, Mild |
| | [Leukemia Mononuclear TGLs = 1-5] | | |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 31

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101832

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|-----------------------|-------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 32

TRT#: 3

SEX: Male

DAY ON TEST: 538

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101833

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Glandular | * Testes | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|------------------------|------------------------------|----------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Skin | Subcut Tiss | Fibrosarcoma | |
| | [Fibrosarcoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Adenoma | |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibrosarcoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 33

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101834

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 |
| * Mammary Gland | * Nose | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Lymph Node, Mesenteric | | Hyperplasia | Mild |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 34

TRT#: 3

SEX: Male

DAY ON TEST: 285

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101835

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-----------------|--------------------------------------|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Mild |
| * Mammary Gland | | Schwannoma Malignant | |
| | [Schwannoma Malignant TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Testes | Bilateral, Germ Cell | Degeneration | Mild |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 35

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101836

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected. Pheochromocytoma Benign Inflammation Minimal
- * Heart
Cardiomyopathy Mild
- * Islets, Pancreatic
Adenoma
- * Kidney
Nephropathy Mild
- * Liver
Hepatodiaphragmatic Nodule
[Hepatodiaphragmatic Nodule TGLs = 4-17]
- * Lymph Node, Mandibular
Hyperplasia Mild
- * Pancreas
Acinus Adenoma Multiple
Acinus Hyperplasia Moderate
Note: TGL 3 described as multiple nodules per IANR.
[Adenoma TGLs = 2,3-15+16]
[Hyperplasia TGLs = 3-16]
- * Pituitary Gland
Pars Distalis Adenoma
[Adenoma TGLs = 1-14]
- * Spleen
Hematopoietic Cell Proliferation Minimal
- * Stomach, Forestomach
Epithelium Hyperplasia Minimal
- * Thymus
Atrophy Moderate
- * Thyroid Gland
C Cell Hyperplasia Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 36

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101837

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-----------------|------------------------------|-----------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Atrophy | Mild |
| | Acinus | Hyperplasia | Mild |
| | [Adenoma TGLs = 1,2-14+15] | | |
| | [Hyperplasia TGLs = 3-16] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 37

TRT#: 3

SEX: Male

DAY ON TEST: 686

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101838

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Mammary Gland |
| * Nose | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Inflammation | Marked |
| * Lymph Node, Mesenteric | | Hyperplasia | Mild |
| * Pancreas | Acinus | Adenoma | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Carcinoma | |

[Carcinoma TGLs = 1-14]

PRIMARY CAUSE OF DEATH - Thyroid Gland C Cell Carcinoma

CONTRIBUTORY CAUSE OF DEATH - Lung Inflammation

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 38

TRT#: 3

SEX: Male

DAY ON TEST: 649

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101839

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - * Heart
 - * Kidney
 - * Liver
 - * Lung
 - [Infiltration Cellular TGLs = 3-3+4]
 - * Lymph Node, Mandibular
 - * Pancreas
 - * Pituitary Gland
 - * Skin
 - [Fibroma TGLs = 1-14]
 - * Spleen
 - * Testes
 - [Edema TGLs = 2-11]
 - * Thyroid Gland
- Hyperplasia Minimal
- Cardiomyopathy Minimal
- Nephropathy Minimal
- Clear Cell Focus
- Infiltration Cellular Histiocyte, Mild
- Hyperplasia Mild
- Hyperplasia Mild
- Hyperplasia Mild
- Fibroma
- Hematopoietic Cell Proliferation Minimal
- Pigmentation Hemosiderin, Minimal
- Atrophy Moderate
- Edema Marked
- Hyperplasia Mild

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 39

TRT#: 3

SEX: Male

DAY ON TEST: 704

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101840

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------|-------------------|
| * Eye | * Harderian Gland |
|-------|-------------------|

OBSERVATIONS

- | | | | |
|------------------------|---------------|----------------|----------|
| * Adrenal Medulla | | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Lung | | Inflammation | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 40

TRT#: 3

SEX: Male

DAY ON TEST: 705

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101841

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|---|---|----------------------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 6-5+18] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| Note: TGL 5 described as multiple nodules per IANR. | | | |
| | [Adenoma TGLs = 1,2,3,4,5-14+15+16+17+6l] | | |
| | [Hyperplasia TGLs = 5-6] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 41

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101842

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|---------------|----------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Infarct | Chronic, Minimal |
| | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Fatty Change | Minimal |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 42

TRT#: 3

SEX: Male

DAY ON TEST: 737

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101843

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Moderate
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Mild
* Liver		Fatty Change	Minimal
* Lung		Infiltration Cellular	Histiocyte, Mild
	[Infiltration Cellular TGLs = 7-3+4]		
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[Adenoma TGLs = 3,4,5-16+17+18]		
	[Hyperplasia TGLs = 6-6+19]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Marked
	[Hyperplasia TGLs = 8-8]		
* Skin	Hair Follicle	Cyst	
	[Cyst TGLs = 1,2-14+15]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 43

TRT#: 3

SEX: Male

DAY ON TEST: 701

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101844

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | |
|--|----------------------------------|------------------|
| * Adrenal Medulla | Hyperplasia | Mild |
| * Bone Marrow | Hyperplasia | Moderate |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Salivary Glands | Cyst | Marked |
| Note: Lesion is a sialocele. | | |
| [Cyst TGLs = 1-14] | | |
| * Spleen | Hematopoietic Cell Proliferation | Moderate |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Salivary Glands Cyst

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 44

TRT#: 3

SEX: Male

DAY ON TEST: 687

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101845

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * 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 | * Liver |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--|---------------|-----------------------|-----------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Brain | Cerebrum | Astrocytoma Malignant | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 1-3+4] | | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 2-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Brain Cerebrum Astrocytoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 45

TRT#: 3

SEX: Male

DAY ON TEST: 675

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1101846

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

Blood Vessel

Note: Testes affected.

- * Heart
- * Kidney
- * Spleen
- * Thymus
- * Thyroid Gland

[Adenoma TGLs = 1-14]

C Cell

Inflammation

Mild

Cardiomyopathy

Minimal

Nephropathy

Moderate

Pigmentation

Hemosiderin, Moderate

Atrophy

Marked

Adenoma

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 46

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101847

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|--|----------------------------------|-------------------|
| Blood Vessel | Inflammation | Minimal |
| Note: Testes affected. | | |
| * Heart | Cardiomyopathy | Mild |
| * Kidney | Nephropathy | Moderate |
| * Liver | Clear Cell Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | Hyperplasia | Mild |
| * Pancreas | Acinus | |
| | Acinus | |
| Note: Per IANR, TGL 2 is a single mass and it is being changed to Adenoma. | | |
| [Adenoma TGLs = 2-15] | | |
| [Hyperplasia TGLs = 3-16] | | |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |
| * Thymus | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 1-14] | | |
| * Thyroid Gland | C Cell | Hyperplasia |
| | | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 47

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101848

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - Blood Vessel
 - [Inflammation TGLs = Testes, cecum, and rectum affected.]
 - * Heart
 - * Kidney
 - * Lung
 - * Lymph Node, Mandibular
 - * Pancreas
 - Acinus
 - Acinus
 - Note: One of the nodules observed grossly is a pancreatic lymph node.
 - [Adenoma TGLs = 2-14]
 - [Hyperplasia TGLs = 2-6+14]
 - * Spleen
 - * Stomach, Forestomach
 - * Testes
 - [Adenoma TGLs = 1-15]
 - * Thymus
- | | | |
|--|----------------------------------|----------------------|
| | Hyperplasia | Minimal |
| | Inflammation | Moderate |
| | Cardiomyopathy | Mild |
| | Nephropathy | Moderate |
| | Infiltration Cellular | Histiocyte, Mild |
| | Hyperplasia | Mild |
| | Infiltration Cellular | Plasma Cell, Mild |
| | Adenoma | |
| | Hyperplasia | Moderate |
| | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Minimal |
| | Hyperplasia | Minimal |
| | Adenoma | |
| | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 48

TRT#: 3

SEX: Male

DAY ON TEST: 551

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1101849

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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, Mesenteric | * 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 Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | | Fatty Change | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Testes | Bilateral, Germinal Epith | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 49

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101850

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------------------|-----------------------------|----------------------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Pheochromocytoma Benign | |
| Note: Testes affected. | | Inflammation | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Fatty Change | Minimal |
| * Pancreas | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 50

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1101851

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Liver
- * Parathyroid Gland
- * Seminal Vesicle
- * Trachea
- Blood Vessel
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Prostate
- * Stomach, Glandular
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Salivary Glands
- * Thyroid Gland

OBSERVATIONS

- * Adrenal Cortex
- * Heart
- * Kidney
- * Lung
 - [Infiltration Cellular TGLs = 3-3+4]
- * Lymph Node, Mandibular
- * Pancreas
- * Pituitary Gland
 - [Adenoma TGLs = 2-15]
- * Skin
 - [Fibroma TGLs = 1-14]
- * Spleen
- * Testes
- * Thymus
- Hyperplasia
- Cardiomyopathy
- Nephropathy
- Infiltration Cellular
- Hyperplasia
- Hyperplasia
- Adenoma
- Fibroma
- Hematopoietic Cell Proliferation
- Atrophy
- Atrophy
- Mild
- Mild
- Minimal
- Histiocyte, Minimal
- Mild
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 51

TRT#: 5

SEX: Male

DAY ON TEST: 736

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101852

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|---|---------------|-------------------------|-----------------------|
| * Adrenal Medulla | Bilateral | Pheochromocytoma Benign | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| [Nephropathy TGLs = 5-5] | | | |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Atrophy | Minimal |
| [Adenoma TGLs = 1,2,3,4,6-14+15+16+17+18] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 52

TRT#: 5

SEX: Male

DAY ON TEST: 736

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101853

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------------------------|----------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Cyst | Mild |
| | | Nephropathy | Mild |
| | [Cyst TGLs = 2-5] | | |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mesenteric | | Inflammation | Granulomatous, Mild |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Skin | | Keratoacanthoma | |
| | [Keratoacanthoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 53

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101854

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Liver | * Lung | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------------------------|---------------|----------------------------------|-------------------|
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| [Inflammation TGLs = 1-11] | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Carcinoma | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 54

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101855

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-----------------------------------|---------------|------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Rectum and testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Basophilic Focus | |
| | Acinus | Hyperplasia | Mild |
| [Adenoma TGLs = 1,2-14+15] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 55

TRT#: 5

SEX: Male

DAY ON TEST: 659

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101856

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - Blood Vessel
 - Note: Thymus and testes affected.
 - [Inflammation TGLs = 4-11]
- * Eye
 - Cornea
- * Heart
 - Cardiomyopathy
- * Kidney
 - [Nephropathy TGLs = 5-5+16]
- * Lung
 - Mediastinal
- Lymph Node
 - [Hemorrhage TGLs = 2-15]
- * Lymph Node, Mandibular
 - [Hyperplasia TGLs = 1-9+14]
- * Spleen
 - Hematopoietic Cell Proliferation
 - Pigmentation
- * Thymus
 - Atrophy
- * Thyroid Gland
 - C Cell

Hyperplasia Marked
 Pheochromocytoma Benign
 Inflammation Moderate
 Inflammation Chronic Active, Moderate
 Cardiomyopathy Mild
 Nephropathy Marked
 Inflammation Marked
 Hemorrhage Moderate
 Hyperplasia Moderate
 Hematopoietic Cell Proliferation Minimal
 Pigmentation Hemosiderin, Mild
 Atrophy Marked
 Hyperplasia Moderate

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 56

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101857

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------------------|--------|------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Cyst | Mild |
| | | Nephropathy | Mild |
| [Cyst TGLs = 1-14] | | | |
| * Liver | | Clear Cell Focus | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 57

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101858

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* 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	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
* Adrenal Medulla		Hyperplasia	Minimal
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
		Fatty Change	Minimal
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[Infiltration Cellular TGLs = 6-3+4]		
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Mild
	[Adenoma TGLs = 1,2-14+15]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
	Lymph Follic	Hyperplasia	Minimal
		Pigmentation	Hemosiderin, Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal
* Thymus		Atrophy	Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 58

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101859

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla	Bilateral	Hyperplasia	Minimal
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Mild
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[Infiltration Cellular TGLs = 1-3+4]		
* Lymph Node, Mandibular		Hyperplasia	Moderate
* Pancreas	Acinus	Hyperplasia	Mild
	[Hyperplasia TGLs = 2-14]		
* Spleen	Lymph Follic	Hyperplasia	Minimal
		Pigmentation	Hemosiderin, Mild
* Thymus		Atrophy	Mild

Experiment Number: 20403 - 01
Test Type: CHRONIC
Route: DOSED FEED
Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic
CAS Number: 5263-02-5

Date Report Requested: 05/25/2016
Time Report Requested: 10:06:20
First Dose M/F: 09/03/09 / 09/04/09
Lab: BAT

ANIMAL ID: 59

TRT#: 5

SEX: Male

DAY ON TEST: 701

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101860

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* 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	* Liver	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
* Adrenal Medulla		Hyperplasia	Minimal
Blood Vessel		Inflammation	Mild
Note: Forestomach and testes affected.			
* Eye	Bilateral, Cornea	Inflammation	Chronic Active, Mild
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Mild
* Lung		Infiltration Cellular	Histiocyte, Minimal
[Infiltration Cellular TGLs = 5-3+4]			
Lymph Node	Mediastinal	Atrophy	Moderate
	Mediastinal	Hemorrhage	Moderate
[Hemorrhage TGLs = 4-17]			
* Lymph Node, Mandibular		Ectasia	Marked
[Ectasia TGLs = 2-15]			
* Pancreas	Acinus	Adenoma	
	Acinus	Atrophy	Mild
[Adenoma TGLs = 1-14]			
* Spleen	Lymph Follic	Hyperplasia	Mild
		Pigmentation	Hemosiderin, Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Marked
[Hyperplasia TGLs = 6-18]			

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 59

TRT#: 5

SEX: Male

DAY ON TEST: 701

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101860

ORGAN AND ACCOUNTABLE SITE STATUS

* Thymus

Lymphoma Malignant

[Lymphoma Malignant TGLs = 3-16]

PRIMARY CAUSE OF DEATH

- Thymus Lymphoma Malignant

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 60

TRT#: 5

SEX: Male

DAY ON TEST: 505

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101861

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| Peripheral Nerve | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|------------------------|----------------|--------------|---------------------|
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Inflammation | Minimal |
| Spinal Cord | Axon | Degeneration | Mild |
| * Spleen | Lymph Follicle | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Marked |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 61

TRT#: 5

SEX: Male

DAY ON TEST: 737

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101862

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Prostate
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Glandular
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Testes
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Preputial Gland
- * Skin
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
- * Adrenal Medulla
- Blood Vessel
- Note: Testes affected.
- * Heart
- * Kidney
- * Liver
- * Lung
- * Lymph Node, Mandibular
- * Pancreas
- * Spleen
- * Thymus
- * Thyroid Gland
- Bilateral
- Acinus
- Acinus
- C Cell
- Hyperplasia
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Cyst
- Nephropathy
- Clear Cell Focus
- Eosinophilic Focus
- Infiltration Cellular
- Hyperplasia
- Infiltration Cellular
- Adenoma
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Hyperplasia
- Mild
- Minimal
- Minimal
- Mild
- Mild
- Mild
- Histiocyte, Mild
- Moderate
- Plasma Cell, Mild
- Multiple
- Marked
- Mild
- Hemosiderin, Minimal
- Mild
- Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 62

TRT#: 5

SEX: Male

DAY ON TEST: 737

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101863

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Prostate
- * Stomach, Forestomach
- * Trachea
- Blood Vessel
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Seminal Vesicle
- * Testes
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pituitary Gland
- * Skin
- * Thyroid Gland

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Adrenal Medulla
- * Heart
- * Kidney
- * Liver
- * Lung
 - [Infiltration Cellular TGLs = 6-3+4]
- * Lymph Node, Mandibular
 - [Hyperplasia TGLs = 2-15]
- * Pancreas
 - Acinus
 - Acinus
 - Acinus
 - [Adenoma TGLs = 3,5-16+18]
 - [Hyperplasia TGLs = 4-17]
- * Preputial Gland
 - Note: Abscess
 - [Inflammation TGLs = 1-14]
- * Spleen
 - Lymph Follic
- Pheochromocytoma Benign
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Mixed Cell Focus
- Infiltration Cellular
- Hyperplasia
- Adenoma
- Atrophy
- Hyperplasia
- Inflammation
- Hematopoietic Cell Proliferation
- Hyperplasia
- Mild
- Mild
- Histiocyte, Minimal
- Moderate
- Multiple
- Minimal
- Marked
- Marked
- Minimal
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 62

TRT#: 5

SEX: Male

DAY ON TEST: 737

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101863

ORGAN AND ACCOUNTABLE SITE STATUS

* Thymus

Pigmentation

Hemosiderin, Moderate

Atrophy

Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 63

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101864

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Trachea
- Blood Vessel
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Preputial Gland
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Prostate
- * Stomach, Glandular
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Parathyroid Gland
- * Salivary Glands
- * Testes

OBSERVATIONS

- * Adrenal Cortex
- * Heart
- * Kidney
- * Liver
- * Lung
 - [Infiltration Cellular TGLs = 4-3+4]
- * Lymph Node, Mandibular
- * Pancreas
 - Acinus
 - Acinus
 - [Adenoma TGLs = 2-15]
 - [Hyperplasia TGLs = 3-16]
- * Skin
 - [Hyperplasia TGLs = 1-14]
- * Spleen
- * Thymus
- * Thyroid Gland
- Hyperplasia
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Hyperplasia
- Adenoma
- Hyperplasia
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Hyperplasia
- Mild
- Minimal
- Mild
- Histiocyte, Mild
- Mild
- Mild
- Marked
- Mild
- Hemosiderin, Mild
- Moderate
- Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 64

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101865

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---|---------------|---------------------------------|---------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Marked |
| * Liver | | Clear Cell Focus | |
| * Lung | | Cystic Keratinizing Epithelioma | |
| | | Infiltration Cellular | Histiocyte, Minimal |
| Note: Cornifying squamous epithelioma. | | | |
| [Cystic Keratinizing Epithelioma TGLs = 1-14] | | | |
| [Infiltration Cellular TGLs = 2-3+4] | | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Glandular | | Metaplasia | Squamous, Minimal |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 65

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101866

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
[Pheochromocytoma Benign TGLs = 1-8]
- * Heart
- * Islets, Pancreatic
- * Kidney
- * Liver
- * Lung
- * Lymph Node, Mandibular
- * Spleen
- Pheochromocytoma Benign
- Cardiomyopathy
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Infiltration Cellular
- Hematopoietic Cell Proliferation
- Pigmentation
- Mild
- Minimal
- Minimal
- Histiocyte, Mild
- Plasma Cell, Mild
- Minimal
- Hemosiderin, Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 66

TRT#: 5

SEX: Male

DAY ON TEST: 707

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101867

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * 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
- * Parathyroid Gland
- * Pituitary Gland
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Skin
- * Stomach, Forestomach
- * Stomach, Glandular
- * Testes
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Minimal
- Note: Testes affected.
- [Inflammation TGLs = 1-11]
- * Heart Cardiomyopathy Mild
- Atrium Thrombosis Marked
- * Kidney Nephropathy Minimal
- * Liver Hepatocyte Necrosis Moderate
- Lymph Node Mediastinal Atrophy Moderate
- Mediastinal Hemorrhage Moderate
- [Hemorrhage TGLs = 4-15]
- * Pancreas Acinus Adenoma
- [Adenoma TGLs = 2-14]
- * Spleen Lymph Follic Atrophy Moderate
- Pigmentation Hemosiderin, Minimal
- * Thymus Atrophy Marked

PRIMARY CAUSE OF DEATH - Heart Atrium Thrombosis

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 67

TRT#: 5

SEX: Male

DAY ON TEST: 670

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101868

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|----------------------------|--------------------------------------|----------------------|-------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Intestine Small, Jejunum | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 3-16] | | |
| * Kidney | | Nephropathy | Mild |
| * Mammary Gland | | Schwannoma Malignant | |
| | [Schwannoma Malignant TGLs = 1-14] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Skin | Sebaceous GI | Adenoma | |
| | [Adenoma TGLs = 2-15] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| Tooth | | Malformation | Minimal |

PRIMARY CAUSE OF DEATH - Intestine Small, Jejunum Adenocarcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 68

TRT#: 5

SEX: Male

DAY ON TEST: 737

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101869

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Kidney | * Lung | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|-----------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 69

TRT#: 5

SEX: Male

DAY ON TEST: 735

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101870

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * 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 | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--|-------------------------|--------------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Hyperplasia | Mild |
| | [Pheochromocytoma Benign TGLs = 3-8] | Pheochromocytoma Benign | |
| Blood Vessel | | Inflammation | Minimal |
| | Note: Testes affected. | | |
| | [Inflammation TGLs = 4-11] | | |
| * Eye | Bilateral, Cornea | Inflammation | Chronic Active, Moderate |
| * Heart | | Cardiomyopathy | Mild |
| | Atrium | Thrombosis | Marked |
| | [Thrombosis TGLs = 5-7] | | |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 1-5+14] | | |
| * Liver | Hepatocyte | Necrosis | Minimal |
| * Lung | | Inflammation | Moderate |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 6-6] | | |
| * Thymus | | Atrophy | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 70

TRT#: 5

SEX: Male

DAY ON TEST: 687

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101871

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---------------------------|--|----------------------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Large, Rectum | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 3-16] | | |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Preputial Gland | | Inflammation | Marked |
| | [Inflammation TGLs = 2-15] | | |
| * Skin | Subcut Tiss | Fibroma | |
| | [Fibroma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Testes | Bilateral, Germinal Epith | Atrophy | Moderate |
| * Thymus | | Hyperplasia | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH

- Skin Subcut Tiss Fibroma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 71

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101872

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Lung | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---|--------------|----------------------------------|----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Mild |
| Note: Ileum, rectum, and testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Islets, Pancreatic | | Carcinoma | |
| [Carcinoma TGLs = 1-14] | | | |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 2-15] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 72

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101873

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
- * Heart
- * Kidney
- * Liver
- * Lung
 - [Infiltration Cellular TGLs = 4-3+4]
- * Lymph Node, Mandibular
- * Mammary Gland
 - [Fibroma TGLs = 1-14]
- * Pancreas
 - Acinus
 - Acinus
 - [Adenoma TGLs = 5,6,7-17+18+19]
 - [Hyperplasia TGLs = 8,9-20+21]
- Skeletal Muscle
 - Note: Mass is located on the Head.
 - [Schwannoma Malignant TGLs = 3-16]
- * Skin
 - Subcut Tiss
 - [Fibroma TGLs = 2-15]
- * Spleen
- * Thymus
- Hyperplasia
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Infiltration Cellular
- Fibroma
- Adenoma
- Hyperplasia
- Schwannoma Malignant
- Fibroma
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Minimal
- Mild
- Minimal
- Histiocyte, Mild
- Plasma Cell, Mild
- Multiple
- Mild
- Mild
- Hemosiderin, Minimal
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 72

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101873

ORGAN AND ACCOUNTABLE SITE STATUS

* Thyroid Gland

C Cell

Hyperplasia

Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 73

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101874

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - [Pheochromocytoma Malignant TGLs = 3-8]
 - Bilateral Pheochromocytoma Malignant
 - Blood Vessel Inflammation
 - Note: Cecum and testes affected. Mild
- * Heart
 - Atrium
 - Cardiomyopathy Minimal
 - Thrombosis Marked
- * Kidney
 - [Nephropathy TGLs = 2-5+15]
 - Nephropathy Marked
- * Lung
 - Inflammation Moderate
- Lymph Node
 - Mediastinal Hemorrhage Moderate
- * Pancreas
 - [Hyperplasia TGLs = 1-14]
 - Acinus Adenoma
 - Acinus Hyperplasia Moderate
- * Spleen
 - Hematopoietic Cell Proliferation Minimal
 - Pigmentation Hemosiderin, Mild
- * Thyroid Gland
 - C Cell Hyperplasia Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 74

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101875

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---|--------|-----------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Marked |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 2-3+4] | | | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| Note: TGL 1 described as more than one nodule per IANR. | | | |
| [Adenoma TGLs = 1-14] | | | |
| [Hyperplasia TGLs = 1-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 75

TRT#: 5

SEX: Male

DAY ON TEST: 627

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101876

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------------------------|-----------|-----------------------|-------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes and Pancreas affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 76

TRT#: 5

SEX: Male

DAY ON TEST: 502

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101877

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | |
|----------|----------------------------------|-------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Moderate |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 77

TRT#: 5

SEX: Male

DAY ON TEST: 684

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101878

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Adrenal Medulla
 - Blood Vessel
 - Note: Mesenteric arteries and testes affected.
 - * Heart
 - Atrium
 - * Kidney
 - [Nephropathy TGLs = 1-14]
 - * Lung
 - * Spleen
 - * Thymus
- | | | |
|--|----------------|-------------------|
| | Hyperplasia | Moderate |
| | Inflammation | Mild |
| | Necrosis | Mild |
| | Cardiomyopathy | Moderate |
| | Thrombosis | Moderate |
| | Nephropathy | Marked |
| | Inflammation | Moderate |
| | Pigmentation | Hemosiderin, Mild |
| | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

CONTRIBUTORY CAUSE OF DEATH - Heart Atrium Thrombosis

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 78

TRT#: 5

SEX: Male

DAY ON TEST: 690

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101879

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------------------|---------------|-----------------------|-----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Moderate |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 2-5+14] | | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 1-15] | | | |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 79

TRT#: 5

SEX: Male

DAY ON TEST: 568

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101880

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|-----------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Intestine Large, Cecum | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Mammary Gland |
| * Nose | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|--------------------------|--------------------------|--------------------------|
| * Intestine Large, Colon | * Intestine Small, Ileum | * Lymph Node, Mesenteric |
|--------------------------|--------------------------|--------------------------|

AUTO PRECLUDES DIAG.

- * Pancreas

OBSERVATIONS

- | | | | |
|-------------------------------|---------------|----------------------|-----------------------|
| * Adrenal Cortex | | Necrosis | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | Endocardium | Schwannoma Malignant | |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 1-5+14] | | | |
| * Lung | | Inflammation | Moderate |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 80

TRT#: 5

SEX: Male

DAY ON TEST: 708

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101881

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---|--------|-------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Pheochromocytoma Benign | |
| Note: Testes affected. | | Inflammation | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| [Nephropathy TGLs = 3-5+16] | | | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Marked |
| Note: TGL 2 described as multiple nodules per IANR. | | | |
| [Adenoma TGLs = 1,2-14+15] | | | |
| [Hyperplasia TGLs = 2-15] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 81

TRT#: 5

SEX: Male

DAY ON TEST: 490

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101882

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|----------------------------|---------------------------------------|----------------------------------|----------------------|
| Blood Vessel | | Schwannoma Malignant | Metastatic (Skin) |
| * Heart | | Schwannoma Malignant | Metastatic (Skin) |
| * Intestine Small, Jejunum | | Schwannoma Malignant | Metastatic (Skin) |
| | [Schwannoma Malignant TGLs = 6-17] | | |
| * Kidney | | Schwannoma Malignant | Metastatic (Skin) |
| | [Schwannoma Malignant TGLs = 3-15] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | | Schwannoma Malignant | Metastatic (Skin) |
| | [Schwannoma Malignant TGLs = 4-3+4] | | |
| * Lymph Node, Mesenteric | | Schwannoma Malignant | Metastatic (Skin) |
| | [Schwannoma Malignant TGLs = 5-16] | | |
| * Pancreas | | Schwannoma Malignant | Metastatic (Skin) |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Skin | | Schwannoma Malignant | |
| | [Schwannoma Malignant TGLs = 1-14] | | |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Schwannoma Malignant | Metastatic (Skin) |

PRIMARY CAUSE OF DEATH - Skin Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 82

TRT#: 5

SEX: Male

DAY ON TEST: 641

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101883

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Brain	* Epididymis	* Esophagus
* Harderian Gland	* 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	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Eye	Bilateral, Cornea	Inflammation	Acute, Minimal
	Antr Chamber	Inflammation	Acute, Mild
* Islets, Pancreatic		Adenoma	
* Kidney		Nephropathy	Moderate
* Liver		Fatty Change	Minimal
	Serosa	Inflammation	Acute, Mild
* Lung		Infiltration Cellular	Histiocyte, Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Pigmentation	Hemosiderin, Moderate
* Stomach, Forestomach	Epithelium	Hyperplasia	Moderate
		Ulcer	Mild
* Thymus		Atrophy	Moderate

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 83

TRT#: 5

SEX: Male

DAY ON TEST: 406

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101884

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 84

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101885

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--|----------------|-----------------------|-------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Infarct | Chronic, Mild |
| | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Nose | Respirat Epith | Hyperplasia | Minimal |
| | | Inflammation | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 85

TRT#: 5

SEX: Male

DAY ON TEST: 728

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101886

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------------------------|-------------------|----------------------------------|-------------------|
| * Adrenal Medulla | Bilateral | Pheochromocytoma Benign | |
| [Pheochromocytoma Benign | TGLs = 1-8] | | |
| Blood Vessel | | Inflammation | Moderate |
| Note: Pancreas and testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy | TGLs = 3-5+15] | | |
| * Nose | | Inflammation | Moderate |
| * Skin | | Inflammation | Mild |
| [Inflammation | TGLs = 2-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | Bilateral, C Cell | Adenoma | |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 86

TRT#: 5

SEX: Male

DAY ON TEST: 575

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101887

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Epididymis
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Preputial Gland
- * Skin
- * Trachea
- Blood Vessel
- * Esophagus
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Prostate
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Salivary Glands
- * Testes
- * Bone Marrow
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Thyroid Gland

AUTO PRECLUDES DIAG.

- * Pancreas
- * Spleen

OBSERVATIONS

- * Adrenal Medulla
- * Brain
- * Eye
- * Heart
- * Kidney
- * Liver
- * Lung
- * Stomach, Forestomach
- * Thymus
- Bilateral
- Bilateral, Cornea
- Bilateral, Cornea
- Valve
- Hepatocyte
- Epithelium
- Hyperplasia
- Inflammation
- Inflammation
- Necrosis
- Inflammation
- Nephropathy
- Fatty Change
- Necrosis
- Inflammation
- Hyperplasia
- Hyperplasia
- Atrophy
- Minimal
- Minimal
- Acute, Mild
- Mild
- Marked
- Moderate
- Minimal
- Mild
- Moderate
- Minimal
- Mild
- Marked

PRIMARY CAUSE OF DEATH - Heart Valve Inflammation

Animal Note: Most tissues contain colonies of cocci.

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 87

TRT#: 5

SEX: Male

DAY ON TEST: 660

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101888

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected.
- * Eye
- * Heart
- * Kidney
- * Liver
- * Lung
[Neuroblastoma TGLs = 4-3+4]
- * Lymph Node, Mandibular
- * Mammary Gland
[Fibroma TGLs = 3-16]
- * Nose
- * Pituitary Gland
- * Skin
[Fibroma TGLs = 2-15]
[Inflammation TGLs = 1-14]
- * Spleen
- * Thymus
- Hyperplasia
- Inflammation
- Cornea
- Inflammation
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Neuroblastoma
- Infiltration Cellular
- Fibroma
- Olfactory Epi
- Pars Distalis
- Subcut Tiss
- Neuroblastoma
- Adenoma
- Fibroma
- Inflammation
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Mild
- Minimal
- Chronic Active, Mild
- Mild
- Moderate
- Metastatic (Nose)
- Plasma Cell, Marked
- Mild
- Minimal
- Hemosiderin, Mild
- Moderate

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 88

TRT#: 5

SEX: Male

DAY ON TEST: 737

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101889

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Liver | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--|---------------|----------------------------------|----------------------------|
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| [Nephropathy TGLs = 5-5+17] | | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 7-19] | | | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Moderate |
| [Adenoma TGLs = 3-15] | | | |
| [Hyperplasia TGLs = 4-16] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Skin | Subcut Tiss | Carcinoma | Metastatic (Thyroid Gland) |
| [Carcinoma TGLs = 2-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Carcinoma | |
| [Carcinoma TGLs = 6-18] | | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 89

TRT#: 5

SEX: Male

DAY ON TEST: 737

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101890

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|---|----------------------------------|-------------------|
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Marked |
| | [Adenoma TGLs = 1,2,3,4,5-14+15+16+17+18] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 90

TRT#: 5

SEX: Male

DAY ON TEST: 580

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101891

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Intestine Small, Ileum

OBSERVATIONS

- | | | | |
|--------------------------|-------------|----------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | Endocardium | Schwannoma Malignant | |
| * Kidney | | Nephropathy | Mild |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH

- Heart Endocardium Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 91

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101892

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * 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 | * Liver | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Preputial Gland |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|------------------------|----------------------------------|------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Bone | | Fibrous Osteodystrophy | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Nose | Olfactory Epi | Atrophy | Minimal |
| | Respirat Epith | Hyperplasia | Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Marked |
| | [Adenoma TGLs = 1,2-14+15] | | |
| | [Hyperplasia TGLs = 1,2-14+15] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Prostate | Epithelium | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 92

TRT#: 5

SEX: Male

DAY ON TEST: 676

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101893

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--|--|----------------------------|-----------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| | [Pheochromocytoma Benign TGLs = 2-15] | | |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 3-16] | | |
| * Parathyroid Gland | | Hyperplasia | Mild |
| Penis | | Developmental Malformation | |
| Note: Developmental malformation diagnosis used to represent prolapse (not a diagnostic option). | | | |
| | [Developmental Malformation TGLs = 1-14] | | |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Stomach, Glandular | | Mineralization | Minimal |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 93

TRT#: 5

SEX: Male

DAY ON TEST: 735

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101894

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * 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
- * Liver
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Mammary Gland
- * Nose
- * Parathyroid Gland
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Stomach, Forestomach
- * Stomach, Glandular
- * Testes
- * Thymus
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Mild
Note: Testes affected.
- * Heart Cardiomyopathy Minimal
- * Kidney Nephropathy Marked
[Nephropathy TGLs = 4-5+17]
- * Lung Infiltration Cellular Histiocyte, Mild
[Infiltration Cellular TGLs = 5-3]
- * Pancreas Acinus Adenoma
Acinus Hyperplasia Moderate
[Adenoma TGLs = 2-15]
[Hyperplasia TGLs = 1-14]
- * Pituitary Gland Pars Distalis Hyperplasia Minimal
- * Skin Epidermis Hyperplasia Marked
[Hyperplasia TGLs = 3-16]
- * Spleen Hematopoietic Cell Proliferation Mild
Pigmentation Hemosiderin, Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 94

TRT#: 5

SEX: Male

DAY ON TEST: 735

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101895

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------|--|----------------------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | Bilateral | Hyperplasia | Marked |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 2-5+15] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| Oral Mucosa | | Inflammation | Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 1-14] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 95

TRT#: 5

SEX: Male

DAY ON TEST: 439

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101896

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|------------------------|------------------------------|--------------|----------------------|
| * Eye | | Atrophy | Moderate |
| | [Atrophy TGLs = 1-14] | | |
| * Harderian Gland | | Inflammation | Moderate |
| | [Inflammation TGLs = 2-15] | | |
| * Kidney | | Nephropathy | Minimal |
| * Pituitary Gland | Pars Intermed | Adenoma | |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Intermed Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 96

TRT#: 5

SEX: Male

DAY ON TEST: 688

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1101897

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 |
| * Liver | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Bone Marrow | | Atrophy | Marked |
| * Islets, Pancreatic | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Nose | Respirat Epith | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Intermed | Adenoma | |
| | [Adenoma TGLs = 1-14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Intermed Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 97

TRT#: 5

SEX: Male

DAY ON TEST: 735

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101898

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected.
- * Heart
- * Kidney
- * Lung
- * Pancreas
[Hyperplasia TGLs = 2-15]
- * Pituitary Gland
[Adenoma TGLs = 1-14]
- * Skin
[Basal Cell Carcinoma TGLs = 4-17]
- * Spleen
- * Thymus
[Hyperplasia TGLs = 3-16]
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Nephropathy
- Infiltration Cellular
- Hyperplasia
- Adenoma
- Basal Cell Carcinoma
- Hematopoietic Cell Proliferation
- Pigmentation
- Hyperplasia
- Minimal
- Mild
- Mild
- Mild
- Histiocyte, Mild
- Marked
- Mild
- Hemosiderin, Moderate
- Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 98

TRT#: 5

SEX: Male

DAY ON TEST: 735

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101899

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal 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 |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---|---------------|-------------------------|----------------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| Note: TGL 5 Adrenal Gland is actually on slide 08. Slide 09 is Brain. | | | |
| [Pheochromocytoma Benign TGLs = 5-9] | | | |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes and pancreas affected. | | | |
| * Kidney | Renal Tubule | Cyst | Moderate |
| | | Hyperplasia | Atypical, Minimal |
| | | Nephropathy | Marked |
| [Cyst TGLs = 3,4-5+16] | | | |
| [Nephropathy TGLs = 2-5+15+16] | | | |
| * Lung | | Carcinoma | Metastatic (Thyroid Gland) |
| | | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 7-4] | | | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Moderate |
| [Adenoma TGLs = 1-14] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Carcinoma | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 98

TRT#: 5

SEX: Male

DAY ON TEST: 735

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101899

ORGAN AND ACCOUNTABLE SITE STATUS

[Carcinoma TGLs = 6-17]

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 99

TRT#: 5

SEX: Male

DAY ON TEST: 594

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1101900

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 100

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1101901

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|---|---|----------------------------------|-------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| Blood Vessel | | Inflammation | Moderate |
| Note: Colon, pancreas, and testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Moderate |
| Note: TGL 3 described as multiple nodules per IANR. | | | |
| | [Adenoma TGLs = 3-16] | | |
| | [Hyperplasia TGLs = 3-6+16] | | |
| * Skin | | Cyst Epithelial Inclusion | |
| | | Keratoacanthoma | |
| | Tail | Papilloma | |
| | [Cyst Epithelial Inclusion TGLs = 2-15] | | |
| | [Keratoacanthoma TGLs = 1-14] | | |
| | [Papilloma TGLs = 4-17] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 101

TRT#: 1

SEX: Male

DAY ON TEST: 735

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101902

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--|-------------|-----------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| Blood Vessel | | Mineralization | Mild |
| * Islets, Pancreatic | | Adenoma | |
| [Adenoma TGLs = 2-15] | | | |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 4-3+4] | | | |
| * Nose | | Inflammation | Minimal |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Moderate |
| [Adenoma TGLs = 3-16] | | | |
| * Skin | Subcut Tiss | Hemangiosarcoma | |
| [Hemangiosarcoma TGLs = 1-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 102

TRT#: 1

SEX: Male

DAY ON TEST: 701

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101903

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|-------------------------|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Bone Marrow | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Skin | Subcut Tiss | Fibroma | |
| | [Fibroma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Testes | Germinal Epith | Atrophy | Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 103

TRT#: 1

SEX: Male

DAY ON TEST: 538

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101904

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Skin | Subcut Tiss | Fibrosarcoma | |
| | [Fibrosarcoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibrosarcoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 104

TRT#: 1

SEX: Male

DAY ON TEST: 664

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101905

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|----------------|----------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| | Respirat Epith | Metaplasia | Squamous, Minimal |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 105

TRT#: 1

SEX: Male

DAY ON TEST: 735

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101906

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|---------------|----------------------------------|-----------------------|
| * Adrenal Cortex | | Vacuolization Cytoplasmic | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 106

TRT#: 1

SEX: Male

DAY ON TEST: 553

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101907

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone
- * Bone Marrow
- * 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
- * Lymph Node, Mesenteric
- * Mammary Gland
- * Parathyroid Gland
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Skin
- * Stomach, Forestomach
- * Stomach, Glandular
- * Testes
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

AUTO PRECLUDES DIAG.

- * Brain
- * Pancreas

OBSERVATIONS

- Blood Vessel Inflammation Mild
- Note: Testes affected.
- * Heart Cardiomyopathy Mild
- * Kidney Nephropathy Marked
- * Liver Hepatocyte Necrosis Mild
- * Lung Edema Mild
- * Nose Inflammation Moderate
- * Pituitary Gland Pars Distalis Hyperplasia Moderate
- * Spleen Lymph Follic Atrophy Mild
- * Thymus Pigmentation Hemosiderin, Moderate
- Atrophy Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy
 CONTRIBUTORY CAUSE OF DEATH - Heart Cardiomyopathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 107

TRT#: 1

SEX: Male

DAY ON TEST: 736

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101908

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Moderate
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[Infiltration Cellular TGLs = 3-3+4]		
* Pancreas	Acinus	Basophilic Focus	
	Acinus	Hyperplasia	Moderate
	[Hyperplasia TGLs = 2-15]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
* Skin	Subcut Tiss	Fibroma	
	[Fibroma TGLs = 1-14]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Moderate
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Hyperplasia	Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 108

TRT#: 1

SEX: Male

DAY ON TEST: 736

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101909

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * 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 | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Glandular | * Testes | * Thymus |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---------------------------------|------------|------------------|---------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mesenteric | | Inflammation | Granulomatous, Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Skin | | Keratoacanthoma | |
| [Keratoacanthoma TGLs = 1-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 109

TRT#: 1

SEX: Male

DAY ON TEST: 664

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101910

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------|------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 110

TRT#: 1

SEX: Male

DAY ON TEST: 656

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101911

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Salivary Glands
- * Testes
- * Bone
- * Eye
- * Intestine Large, Rectum
- * Liver
- * Pituitary Gland
- * Seminal Vesicle
- * Thyroid Gland
- * Bone Marrow
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Trachea
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Prostate
- * Stomach, Glandular
- * Urinary Bladder

AUTO PRECLUDES DIAG.

- * Brain

OBSERVATIONS

- * Adrenal Cortex
 - Blood Vessel
 - Note: Testes affected.
- * Heart
 - Cardiomyopathy
- * Islets, Pancreatic
 - [Carcinoma TGLs = 4-14]
- * Kidney
 - [Nephropathy TGLs = 1-5]
- * Lung
 - [Infiltration Cellular TGLs = 2-3+4]
- * Lymph Node, Mandibular
 - Atrophy
- * Pancreas
 - Acinus
 - Hyperplasia
- * Parathyroid Gland
 - Hyperplasia
- * Spleen
 - Lymph Follicle
 - Atrophy
 - Pigmentation
- * Stomach, Forestomach
 - Epithelium
 - Hyperplasia
 - Ulcer
- * Thymus
 - [Hyperplasia TGLs = 3-14]
 - Atrophy

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 111

TRT#: 1

SEX: Male

DAY ON TEST: 652

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101912

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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	* Nose
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla		Pheochromocytoma Benign	
	[Pheochromocytoma Benign TGLs = 1-8]		
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Mild
* Liver		Fatty Change	Minimal
* Mammary Gland		Fibroadenoma	
	[Fibroadenoma TGLs = 2-14]		
* Pancreas	Acinus	Adenoma	
* Spleen		Hematopoietic Cell Proliferation	Minimal
	Lymph Follic	Hyperplasia	Minimal
		Pigmentation	Hemosiderin, Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Mild
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Benign

CONTRIBUTORY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 112

TRT#: 1

SEX: Male

DAY ON TEST: 701

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101913

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone
- * Brain
- * Epididymis
- * Esophagus
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Duodenum
- * Intestine Small, Ileum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Liver
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Mammary Gland
- * Nose
- * Parathyroid Gland
- * Pituitary Gland
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Stomach, Glandular
- * Testes
- * Trachea
- * Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Minimal
 - Note: Testes affected.
- * Bone Marrow Atrophy Mild
- * Heart Cardiomyopathy Minimal
- * Intestine Large, Cecum Erosion Mild
- * Kidney Nephropathy Marked
 - [Nephropathy TGLs = 3-5]
- * Lung Infiltration Cellular Histiocyte, Moderate
- Lymph Node Mediastinal Atrophy Moderate
 - Mediastinal Hemorrhage Chronic, Moderate
 - [Hemorrhage TGLs = 2-15]
- * Pancreas Acinus Hyperplasia Mild
- * Skin Keratoacanthoma
 - [Keratoacanthoma TGLs = 1-14]
- * Spleen Lymph Follic Atrophy Mild
 - Pigmentation Hemosiderin, Moderate
- * Stomach, Forestomach Epithelium Hyperplasia Mild
 - Ulcer Mild
 - [Ulcer TGLs = 4-16]
- * Thymus Atrophy Moderate
- * Thyroid Gland C Cell Hyperplasia Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 112

TRT#: 1

SEX: Male

DAY ON TEST: 701

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101913

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 113

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101914

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* 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
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
* Adrenal Medulla	Bilateral	Hyperplasia	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[Infiltration Cellular TGLs = 4-3+4]		
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Mild
	[Adenoma TGLs = 2-15]		
* Pituitary Gland	Pars Distalis	Adenoma	
	[Adenoma TGLs = 3-8]		
* Skin		Cyst Epithelial Inclusion	
	[Cyst Epithelial Inclusion TGLs = 1-14]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Mild
* Testes	Germinal Epith	Atrophy	Mild
	Interstit Cell	Hyperplasia	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	C Cell	Hyperplasia	Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 114

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101915

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* 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	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Moderate
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Mild
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Skin	Hair Follicle	Cyst	Marked
		Inflammation	Marked
	[Cyst TGLs = 1,2-14+15]		
	[Inflammation TGLs = 3-16]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Moderate
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 115

TRT#: 1

SEX: Male

DAY ON TEST: 737

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101916

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
		Eosinophilic Focus	
* Lung		Infiltration Cellular	Histiocyte, Mild
	[Infiltration Cellular TGLs = 1-3+4]		
* Prostate	Epithelium	Hyperplasia	Minimal
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Mild
* Testes	Seminif Tub	Dilation	Minimal
* Thymus		Atrophy	Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 116

TRT#: 1

SEX: Male

DAY ON TEST: 737

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101917

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | | Eosinophilic Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Atrophy | Mild |
| | Acinus | Hyperplasia | Mild |
| | [Adenoma TGLs = 1,2,3,4-14+15+16+17] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Testes | Germinal Epith | Atrophy | Minimal |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Adenoma | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 117

TRT#: 1

SEX: Male

DAY ON TEST: 693

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101918

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------|----------------|--------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Marked |
| * Liver | Hepatocyte | Necrosis | Mild |
| Lymph Node | Pancreatic | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 2-15] | | |
| * Pancreas | Acinus | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 1-14] | | |
| * Thyroid Gland | Follicular Cel | Hyperplasia | Moderate |

PRIMARY CAUSE OF DEATH - Thymus Lymphoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 118

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101919

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------|----------------------------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Mild |
| | [Adenoma TGLs = 1-14] | | |
| | [Hyperplasia TGLs = 2-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | | Thrombosis | Chronic, Marked |
| | [Thrombosis TGLs = 3-16] | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 119

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101920

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * 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 | * Liver | * Lung | * Lymph Node, Mesenteric |
| * Mammary Gland | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | | |

OBSERVATIONS

- | | | | |
|---|---------------|-----------------------|-----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Bone | | Inflammation | Marked |
| Note: Abscess. | | | |
| [Inflammation TGLs = 3-18] | | | |
| * Bone Marrow | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| [Infiltration Cellular TGLs = 4-16] | | | |
| * Nose | | Inflammation | Minimal |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Moderate |
| Note: TGL 5 described multiple nodules on IANR. | | | |
| [Adenoma TGLs = 5-17] | | | |
| [Hyperplasia TGLs = 5-17] | | | |
| * Pituitary Gland | Pars Intermed | Hyperplasia | Minimal |
| | Pars Distalis | Hyperplasia | Mild |
| * Salivary Glands | | Cyst | Marked |
| [Cyst TGLs = 2-15] | | | |
| * Skin | | Inflammation | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 119

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101920

ORGAN AND ACCOUNTABLE SITE STATUS

Note: Abscess.

[Inflammation TGLs = 1-14]

* Spleen

Hematopoietic Cell Proliferation

Minimal

Pigmentation

Hemosiderin, Moderate

* Thymus

Atrophy

Moderate

* Urinary Bladder

Inflammation

Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 120

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101921

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|---|-------------------|----------------------------------|-----------------------|
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Brain | Ventricle | Developmental Malformation | Moderate |
| Note: Porencephaly involving region of hippocampus and lateral ventricle. | | | |
| * Eye | Bilateral, Cornea | Inflammation | Chronic Active, Mild |
| [Inflammation TGLs = 1-10] | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Small, Duodenum | | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 2-14] | | | |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 121

TRT#: 1

SEX: Male

DAY ON TEST: 636

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101922

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|-------------------|---------------------------------------|----------------------------------|----------|
| * Adrenal Cortex | | Histiocytic Sarcoma | |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Bone | | Histiocytic Sarcoma | |
| * Bone Marrow | | Histiocytic Sarcoma | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Histiocytic Sarcoma | |
| | | Nephropathy | Minimal |
| | [Histiocytic Sarcoma TGLs = 3-5+15] | | |
| * Liver | | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 2-6+7] | | |
| * Lung | | Histiocytic Sarcoma | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Pituitary Gland | | Histiocytic Sarcoma | |
| * Skin | Subcut Tiss | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | Lymph Follic | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Histiocytic Sarcoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 122

TRT#: 1

SEX: Male

DAY ON TEST: 488

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101923

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Kidney | * Liver |
| * Lung | * Lymph Node, Mesenteric | * 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 | | |

OBSERVATIONS

- | | | | |
|---------------------------|---------------|--------------|-------------------|
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Carcinoma | |
| [Carcinoma TGLs = 1-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| Tooth | | Necrosis | Mild |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Carcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 123

TRT#: 1

SEX: Male

DAY ON TEST: 552

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101924

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Moderate |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | | Fatty Change | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| Zymbal's Gland | | Carcinoma | |
- [Carcinoma TGLs = 1-14]

PRIMARY CAUSE OF DEATH - Zymbal's Gland Carcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 124

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101925

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Trachea
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Prostate
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Salivary Glands
- * Stomach, Glandular
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Liver
- * Pituitary Gland
- * Seminal Vesicle
- * Testes

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Adrenal Medulla
 - Blood Vessel
 - Note: Testes affected.
 - * Heart
 - * Kidney
 - * Lung
 - * Lymph Node, Mandibular
 - * Pancreas
 - * Spleen
 - * Thymus
 - * Thyroid Gland
 - [Carcinoma TGLs = 1-14]
- | | | |
|--|-----------------------|----------------------|
| | Hyperplasia | Mild |
| | Inflammation | Minimal |
| | Cardiomyopathy | Minimal |
| | Nephropathy | Marked |
| | Infiltration Cellular | Histiocyte, Mild |
| | Infiltration Cellular | Plasma Cell, Minimal |
| | Hyperplasia | Mild |
| | Pigmentation | Hemosiderin, Mild |
| | Atrophy | Moderate |
| | Carcinoma | |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 125

TRT#: 1

SEX: Male

DAY ON TEST: 546

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101926

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|----------|-----------------|----------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| * Liver | Hepatocyte | Necrosis | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | Interstitialium | Thrombosis | Moderate |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

CONTRIBUTORY CAUSE OF DEATH

- Lung Interstitialium Thrombosis

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 126

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101927

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * Bone | * 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Bone Marrow | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Skin | | Basal Cell Carcinoma | |
| | [Basal Cell Carcinoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 127

TRT#: 1

SEX: Male

DAY ON TEST: 691

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101928

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * 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
- * Liver
- * Lymph Node, Mesenteric
- * Mammary Gland
- * Nose
- * Pancreas
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Stomach, Glandular
- * Testes
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

MISSING

- * Thymus

OBSERVATIONS

- Blood Vessel Inflammation Mild
- Note: Testes affected.
- * Bone Fibrous Osteodystrophy Mild
- * Heart Cardiomyopathy Mild
- Atrium Thrombosis Mild
- * Kidney Nephropathy Marked
- [Nephropathy TGLs = 2-15]
- * Lung Inflammation Moderate
- Lymph Node Mediastinal Pigmentation Hemosiderin, Moderate
- [Pigmentation TGLs = 3-16]
- * Lymph Node, Mandibular Hyperplasia Minimal
- * Parathyroid Gland Hyperplasia Mild
- * Pituitary Gland Pars Distalis Hyperplasia Minimal
- * Skin Epidermis Hyperplasia Marked
- [Hyperplasia TGLs = 1-14]
- * Spleen Hematopoietic Cell Proliferation Mild
- Lymph Follic Hyperplasia Moderate
- Pigmentation Hemosiderin, Mild
- * Stomach, Forestomach Epithelium Hyperplasia Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 127

TRT#: 1

SEX: Male

DAY ON TEST: 691

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101928

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 128

TRT#: 1

SEX: Male

DAY ON TEST: 611

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101929

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|-------------------------------|------------|----------------------------------|-----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Bone | | Fibrous Osteodystrophy | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| | Atrium | Thrombosis | Marked |
| * Intestine Large, Colon | | Ulcer | Marked |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 1-5+14] | | | |
| * Liver | Hepatocyte | Atrophy | Mild |
| | Hepatocyte | Necrosis | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | | Necrosis | Mild |
| [Necrosis TGLs = 3-15] | | | |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Lymph Node, Mesenteric | | Atrophy | Mild |
| Oral Mucosa | | Ulcer | Mild |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Adenoma | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 128

TRT#: 1

SEX: Male

DAY ON TEST: 611

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101929

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

CONTRIBUTORY CAUSE OF DEATH

- Heart Atrium Thrombosis

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 129

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101930

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Moderate
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Mild
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Pancreas	Acinus	Atrophy	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Pigmentation	Hemosiderin, Mild
* Thyroid Gland	C Cell	Hyperplasia	Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 130

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101931

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-----------------------------|---------------|------------------|-------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 4-17] | | | |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Minimal |
| [Adenoma TGLs = 3-16] | | | |
| [Hyperplasia TGLs = 3-16] | | | |
| * Skin | Hair Follicle | Cyst | Multiple |
| [Cyst TGLs = 1,2-14+15] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| Tooth | | Necrosis | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 131

TRT#: 1

SEX: Male

DAY ON TEST: 729

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101932

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------------|-------------------|-----------------------|-------------------|
| * Eye | Lens | Cataract | Minimal |
| | Bilateral, Cornea | Inflammation | Acute, Moderate |
| | Antr Chamber | Inflammation | Acute, Mild |
| | Bilateral, Cornea | Necrosis | Moderate |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| Lymph Node | Deep Cervical | Inflammation | Marked |
| Note: Abscess. | | | |
| [Inflammation TGLs = 1-14] | | | |
| * Nose | | Inflammation | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Skin | | Ulcer | Marked |
| [Ulcer TGLs = 2-15] | | | |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Lymph Node Deep Cervical Inflammation

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 132

TRT#: 1

SEX: Male

DAY ON TEST: 642

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101933

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* 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
* Lung	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Hyperplasia	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
* Lymph Node, Mandibular		Hyperplasia	Mild
* Pancreas	Acinus	Hyperplasia	Minimal
* Spleen		Hematopoietic Cell Proliferation	Minimal
	Lymph Follic	Hyperplasia	Minimal
		Pigmentation	Hemosiderin, Minimal
* Testes	Germinal Epith	Atrophy	Moderate
* Thymus		Atrophy	Marked

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 133

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101934

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Adrenal Medulla
 - [Pheochromocytoma Malignant TGLs = 5-18]
 - Blood Vessel
 - Note: Testes affected.
 - * Heart
 - * Kidney
 - * Liver
 - * Lymph Node, Mandibular
 - * Pancreas
 - Acinus
 - Acinus
 - Note: Pancreatic neoplasm apparently in vessel on slide 17.
 - [Adenoma TGLs = 3,4-16+17]
 - * Skin
 - [Keratoacanthoma TGLs = 1-14]
 - [Ulcer TGLs = 2-15]
 - * Spleen
 - * Thymus
- Pheochromocytoma Malignant
- Inflammation
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Adenoma
- Carcinoma
- Keratoacanthoma
- Ulcer
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Minimal
- Mild
- Moderate
- Mild
- Multiple
- Mild
- Minimal
- Hemosiderin, Moderate
- Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 134

TRT#: 1

SEX: Male

DAY ON TEST: 683

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101935

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|-----------------------------|--------------|----------------------------------|-------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Intestine Small, Duodenum | Epithelium | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 135

TRT#: 1

SEX: Male

DAY ON TEST: 701

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101936

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Blood Vessel
- * Bone Marrow
- * Epididymis
- * Esophagus
- * Eye
- * 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
- * Pancreas
- * Parathyroid Gland
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Seminal Vesicle
- * Stomach, Forestomach
- * Stomach, Glandular
- * Testes
- * Thyroid Gland
- * Urinary Bladder
- * Trachea

OBSERVATIONS

- * Bone Cranium Schwannoma Malignant Metastatic (Peripheral Nerve)
- * Brain Schwannoma Malignant Metastatic (Peripheral Nerve)
 - [Schwannoma Malignant TGLs = 1-14]
- * Harderian Gland Schwannoma Malignant Metastatic (Peripheral Nerve)
- * Heart Cardiomyopathy Minimal
- * Kidney Nephropathy Minimal
- * Liver Eosinophilic Focus Minimal
- * Mammary Gland Fatty Change Minimal
 - [Fibroadenoma TGLs = 2-15]
- * Nose Schwannoma Malignant Metastatic (Peripheral Nerve)
 - Peripheral Nerve Schwannoma Malignant
 - [Schwannoma Malignant TGLs = 3-16]
- * Pituitary Gland Schwannoma Malignant Metastatic (Peripheral Nerve)
- * Skin Schwannoma Malignant Metastatic (Peripheral Nerve)
- * Spleen Pigmentation Hemosiderin, Minimal
- * Thymus Atrophy Marked

PRIMARY CAUSE OF DEATH - Peripheral Nerve Schwannoma Malignant

CONTRIBUTORY CAUSE OF DEATH - Brain Schwannoma Malignant Peripheral Nerve

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 136

TRT#: 1

SEX: Male

DAY ON TEST: 735

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101937

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Preputial Gland
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Prostate
- * Testes
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Liver
- * Parathyroid Gland
- * Salivary Glands
- * Thyroid Gland
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Trachea

OBSERVATIONS

- * Adrenal Medulla
 - Blood Vessel
 - Note: Forestomach and testes affected.
 - [Inflammation TGLs = 2,3-11]
- * Heart
 - [Cardiomyopathy TGLs = 5-5]
- * Islets, Pancreatic
- * Kidney
 - [Nephropathy TGLs = 5-5]
- * Lung
 - [Infiltration Cellular TGLs = 4-3+4]
- * Lymph Node, Mandibular
- * Pancreas
 - Acinus
- * Skin
 - Epidermis
 - [Hyperplasia TGLs = 1-14]
- * Spleen
 - Hematopoietic Cell Proliferation
 - Pigmentation
- * Stomach, Forestomach
 - Ulcer
- * Thymus
 - Atrophy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 137

TRT#: 1

SEX: Male

DAY ON TEST: 638

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101938

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * 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 | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-----------------|--------------------------------------|----------------------|----------|
| * Brain | | Leukemia Mononuclear | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Leukemia Mononuclear | |
| | | Nephropathy | Moderate |
| | [Nephropathy TGLs = 2-5] | | |
| * Liver | | Leukemia Mononuclear | |
| * Lung | | Leukemia Mononuclear | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 3-14] | | |
| * Spleen | | Leukemia Mononuclear | |
| | [Leukemia Mononuclear TGLs = 1-14] | | |
| * Testes | Germinal Epith | Atrophy | Minimal |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Spleen Leukemia Mononuclear

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 138

TRT#: 1

SEX: Male

DAY ON TEST: 735

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101939

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---|--|----------------------------------|---------------------|
| * Adrenal Medulla
[Pheochromocytoma Benign TGLs = 2-8] | | Pheochromocytoma Benign | |
| Blood Vessel
Note: Testes affected. | | Inflammation | Minimal |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung
[Infiltration Cellular TGLs = 3-3+4] | | Infiltration Cellular | Histiocyte, Minimal |
| * Pancreas
Acinus | | Hyperplasia | Minimal |
| * Skin
Note: Abscess.
[Inflammation TGLs = 1-14] | | Inflammation | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland
C Cell | | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 139

TRT#: 1

SEX: Male

DAY ON TEST: 186

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101940

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|----------|--------------|----------------------|
| * Kidney | Nephropathy | Minimal |
| * Spleen | Pigmentation | Hemosiderin, Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 140

TRT#: 1

SEX: Male

DAY ON TEST: 586

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101941

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lung
- * Pituitary Gland
- * Stomach, Forestomach
- * Urinary Bladder
- Blood Vessel
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Preputial Gland
- * Stomach, Glandular
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Islets, Pancreatic
- * Nose
- * Salivary Glands
- * Testes
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Liver
- * Parathyroid Gland
- * Seminal Vesicle
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
- * Heart
- * Intestine Small, Jejunum
[Adenocarcinoma TGLs = 4-17]
- * Kidney
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
[Inflammation TGLs = 5-18]
- * Pancreas
- * Prostate
- * Skin
- Acinus
- Epithelium
- Head
- Hyperplasia
- Cardiomyopathy
- Adenocarcinoma
- Nephropathy
- Hyperplasia
- Inflammation
- Hyperplasia
- Hyperplasia
- Neural Crest Tumor
- Trichoepithelioma
- Ulcer
- Mild
- Minimal
- Chronic Active, Marked
- Mild
- Minimal
- Marked
- Note: Mass is on the head and unpigmented.
[Neural Crest Tumor TGLs = 2-15]
[Trichoepithelioma TGLs = 1-14]
[Ulcer TGLs = 3-16]
- * Spleen
- * Thymus
- * Thyroid Gland
- C Cell
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Hyperplasia
- Mild
- Hemosiderin, Minimal
- Moderate
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 140

TRT#: 1

SEX: Male

DAY ON TEST: 586

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101941

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Intestine Small, Jejunum Adenocarcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 141

TRT#: 1

SEX: Male

DAY ON TEST: 615

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101942

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * 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 |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------------------|-------------------------|--------------------|-------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Eye | Bilateral, Cornea | Inflammation | Acute, Mild |
| | Antr Chamber, Bilateral | Inflammation | Acute, Minimal |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 1-5+14] | | | |
| * Liver | | Eosinophilic Focus | |
| * Parathyroid Gland | | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 142

TRT#: 1

SEX: Male

DAY ON TEST: 514

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101943

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * 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
- * Liver
- * Lung
- * Lymph Node, Mesenteric
- * Mammary Gland
- * Nose
- * Pancreas
- * Pituitary Gland
- * Preputial Gland
- * Prostate
- * Seminal Vesicle
- * Skin
- * Testes
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

MISSING

- * Lymph Node, Mandibular
- * Salivary Glands

OBSERVATIONS

- Blood Vessel
 - Inflammation Moderate
 - Mineralization Mild
- Note: Testes affected.
- * Bone
 - Fibrous Osteodystrophy Minimal
- * Heart
 - Cardiomyopathy Moderate
 - Mineralization Mild
- * Kidney
 - Nephropathy Marked
- [Nephropathy TGLs = 1-5]
- * Parathyroid Gland
 - Hyperplasia Mild
- * Spleen
 - Lymph Follic Atrophy Mild
 - Pigmentation Hemosiderin, Moderate
- * Stomach, Forestomach
 - Mineralization Mild
- * Stomach, Glandular
 - Mineralization Mild
- * Thymus
 - Atrophy Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 143

TRT#: 1

SEX: Male

DAY ON TEST: 673

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101944

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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	* Mammary Gland	* Nose
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
		Pheochromocytoma Benign	
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Mild
* Liver		Fatty Change	Minimal
* Lymph Node, Mesenteric		Atrophy	Moderate
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Mild
Note: TGL 1 described 4 masses on IANR.			
	[Adenoma TGLs = 1-14]		
	[Hyperplasia TGLs = 1-14]		
* Pituitary Gland	Pars Distalis	Adenoma	
* Spleen		Pigmentation	Hemosiderin, Moderate
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 144

TRT#: 1

SEX: Male

DAY ON TEST: 678

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101945

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * Brain | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

AUTO PRECLUDES DIAG.

- * Intestine Large, Colon

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------|------------------------|-----------------------|
| * Epididymis | | Mesothelioma Malignant | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| | [Hyperplasia TGLs = 1-9] | | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Marked |
| | [Adenoma TGLs = 2-14] | | |
| | [Hyperplasia TGLs = 3-15] | | |
| * Spleen | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Testes | Bilateral | Mesothelioma Malignant | |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 145

TRT#: 1

SEX: Male

DAY ON TEST: 691

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101946

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Pancreas
- * Salivary Glands
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Glandular
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Mammary Gland
- * Pituitary Gland
- * Testes
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Liver
- * Nose
- * Preputial Gland
- * Trachea

OBSERVATIONS

- * Adrenal Medulla
 - Hyperplasia Marked
 - Pheochromocytoma Benign
- Blood Vessel
 - Inflammation Mild
 - Note: Testes affected.
 - [Inflammation TGLs = 7-11]
- * Heart
 - Atrium
 - Cardiomyopathy Mild
 - Thrombosis Marked
 - [Cardiomyopathy TGLs = 5-17]
 - [Thrombosis TGLs = 6-18]
- * Kidney
 - Nephropathy Marked
 - [Nephropathy TGLs = 3-15]
- * Lung
 - Inflammation Moderate
- Lymph Node
 - Mediastinal
 - Hemorrhage Mild
 - [Hemorrhage TGLs = 4-16]
- * Prostate
 - Inflammation Marked
- * Seminal Vesicle
 - Inflammation Marked
- * Skin
 - Subcut Tiss
 - Hemangioma
 - [Hemangioma TGLs = 1-14]
- * Spleen
 - Hematopoietic Cell Proliferation Mild
 - Pigmentation Hemosiderin, Mild
- * Stomach, Forestomach
 - Epithelium
 - Hyperplasia Mild
- * Thymus
 - Atrophy Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 145

TRT#: 1

SEX: Male

DAY ON TEST: 691

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1101946

ORGAN AND ACCOUNTABLE SITE STATUS

* Thyroid Gland

C Cell

Hyperplasia

Minimal

* Urinary Bladder

Inflammation

Mild

PRIMARY CAUSE OF DEATH

- Heart Atrium Thrombosis

CONTRIBUTORY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 146

TRT#: 1

SEX: Male

DAY ON TEST: 609

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101947

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Kidney | | Nephropathy | Moderate |
| * Nose | | Inflammation | Minimal |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Skin | | Fibrosis | Mild |
| [Fibrosis TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 147

TRT#: 1

SEX: Male

DAY ON TEST: 496

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101948

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Mammary Gland
- * Prostate
- * Testes
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Liver
- * Parathyroid Gland
- * Salivary Glands
- * Thyroid Gland
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Pituitary Gland
- * Seminal Vesicle
- * Trachea

MISSING

- * Thymus

OBSERVATIONS

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> * Adrenal Cortex * Adrenal Medulla Blood Vessel Note: Testes affected. * Heart * Kidney <li style="padding-left: 20px;">[Nephropathy TGLs = 1-14] * Lung <li style="padding-left: 20px;">Lymph Node <li style="padding-left: 40px;">[Hemorrhage TGLs = 2-15] <li style="padding-left: 40px;">[Hemorrhage TGLs = 3-16] * Nose * Pancreas * Spleen * Stomach, Forestomach | <ul style="list-style-type: none"> Necrosis Hyperplasia Inflammation Mineralization Cardiomyopathy Mineralization Nephropathy Infiltration Cellular Inflammation Hemorrhage Hemorrhage Inflammation Mineralization Pigmentation Mineralization | <ul style="list-style-type: none"> Minimal Moderate Minimal Mild Minimal Mild Marked Histiocyte, Mild Mild Marked Moderate Mild Minimal Hemosiderin, Mild Mild |
|---|---|---|

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 147

TRT#: 1

SEX: Male

DAY ON TEST: 496

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101948

ORGAN AND ACCOUNTABLE SITE STATUS

* Stomach, Glandular
Tooth

Mineralization
Necrosis

Mild
Mild

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 148

TRT#: 1

SEX: Male

DAY ON TEST: 537

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101949

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|------------------------|-----------|----------------------------------|-----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 149

TRT#: 1

SEX: Male

DAY ON TEST: 684

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1101950

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------------------|---------------------------|----------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Intermed | Carcinoma | |
| | [Carcinoma TGLs = 2-15] | | |
| * Skin | Hair Follicle | Cyst | |
| | [Cyst TGLs = 1-14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Intermed Carcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 150

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1101951

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes, pancreas, stomach, and colon affected.
- * Heart
- * Kidney
[Nephropathy TGLs = 3-15]
- * Liver
- * Lymph Node, Mandibular
- * Nose
- * Pancreas
[Adenoma TGLs = 2-14]
- * Pituitary Gland
- * Skin
Note: Abscess.
[Inflammation TGLs = 1-16]
- * Spleen
- * Thymus
- * Thyroid Gland
- Pheochromocytoma Benign
Inflammation Moderate
- Cardiomyopathy Mild
- Nephropathy Marked
- Clear Cell Focus
- Infiltration Cellular Plasma Cell, Moderate
- Inflammation Minimal
- Acinus
- Pars Distalis
- Hyperplasia Mild
- Inflammation Marked
- Hematopoietic Cell Proliferation Mild
- Pigmentation Hemosiderin, Moderate
- Atrophy Marked
- Hyperplasia Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 151

TRT#: 7

SEX: Male

DAY ON TEST: 723

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101952

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal 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 | * Islets, Pancreatic | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------------------------------|-------------------|----------------------------------|----------------------|
| Blood Vessel | | Inflammation | Moderate |
| Note: Colon and testes affected. | | | |
| [Inflammation TGLs = 1-11] | | | |
| * Eye | Bilateral, Cornea | Inflammation | Chronic Active, Mild |
| | Cornea | Necrosis | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| | Atrium | Thrombosis | Marked |
| * Kidney | | Nephropathy | Marked |
| * Liver | Hepatocyte | Necrosis | Moderate |
| [Necrosis TGLs = 2-6,7] | | | |
| * Lung | | Inflammation | Marked |
| [Inflammation TGLs = 4-3+4] | | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Heart Atrium Thrombosis

CONTRIBUTORY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 151

TRT#: 7

SEX: Male

DAY ON TEST: 723

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101952

ORGAN AND ACCOUNTABLE SITE STATUS

- Lung Inflammation

Experiment Number: 20403 - 01
 Test Type: CHRONIC
 Route: DOSED FEED
 Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA
 Zinc Carbonate, Basic
 CAS Number: 5263-02-5

Date Report Requested: 05/25/2016
 Time Report Requested: 10:06:20
 First Dose M/F: 09/03/09 / 09/04/09
 Lab: BAT

ANIMAL ID: 152

TRT#: 7

SEX: Male

DAY ON TEST: 677

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101953

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Brain	* Epididymis
* Esophagus	* Eye	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Nose	* Parathyroid Gland	* Pituitary Gland
* Testes	* Thyroid Gland	* Trachea	

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
Blood Vessel		Lymphoma Malignant	
* Bone Marrow		Lymphoma Malignant	
* Harderian Gland		Lymphoma Malignant	
* Heart		Lymphoma Malignant	
* Kidney		Lymphoma Malignant	
* Liver		Fatty Change	Mild
		Lymphoma Malignant	
* Lung		Lymphoma Malignant	
Lymph Node	Lumbar	Lymphoma Malignant	
	Mediastinal	Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 6-18]		
	[Lymphoma Malignant TGLs = 3-16]		
* Lymph Node, Mandibular		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 2-15]		
* Lymph Node, Mesenteric		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 7-19]		
* Mammary Gland		Lymphoma Malignant	
* Pancreas		Lymphoma Malignant	
* Preputial Gland		Lymphoma Malignant	
* Prostate		Lymphoma Malignant	
* Salivary Glands		Lymphoma Malignant	
* Seminal Vesicle		Lymphoma Malignant	
* Skin	Subcut Tiss	Lipoma	

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 152

TRT#: 7

SEX: Male

DAY ON TEST: 677

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101953

ORGAN AND ACCOUNTABLE SITE STATUS

[Lipoma TGLs = 1-14]

* Spleen

Capsule

Inflammation

Mild

Lymphoma Malignant

[Inflammation TGLs = 5-17]

[Lymphoma Malignant TGLs = 4-17]

* Stomach, Forestomach

Epithelium

Hyperplasia

Mild

Lymphoma Malignant

* Stomach, Glandular

Lymphoma Malignant

* Thymus

Lymphoma Malignant

* Urinary Bladder

Lymphoma Malignant

PRIMARY CAUSE OF DEATH

- Heart Lymphoma Malignant

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 153

TRT#: 7

SEX: Male

DAY ON TEST: 615

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101954

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | |
|----------|------------------|----------------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |
| * Spleen | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 154

TRT#: 7

SEX: Male

DAY ON TEST: 648

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101955

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|----------------|----------------------------------|---------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Nose | Respirat Epith | Hyperplasia | Minimal |
| * Pancreas | Acinus | Adenoma | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 155

TRT#: 7

SEX: Male

DAY ON TEST: 551

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101956

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|------------------------|------------------|----------------|----------------------|
| * Brain | Cerebrum | Gliosis | Mild |
| | Cerebrum, Neuron | Necrosis | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Moderate |
| Peripheral Nerve | Sciatic | Degeneration | Minimal |
| Spinal Cord | Axon | Degeneration | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| | | Ulcer | Minimal |

[Hyperplasia TGLs = 1-6]

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 156

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101957

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> Blood Vessel <li style="padding-left: 20px;">Note: Testes affected. * Heart * Kidney * Liver * Lung <li style="padding-left: 20px;">[Infiltration Cellular TGLs = 2-3+4] * Lymph Node, Mandibular * Pancreas * Pituitary Gland * Spleen * Thymus * Thyroid Gland <li style="padding-left: 20px;">[Carcinoma TGLs = 1-14] | <ul style="list-style-type: none"> Inflammation Cardiomyopathy Nephropathy Clear Cell Focus Bile Duct Hyperplasia Infiltration Cellular Infiltration Cellular Hyperplasia Adenoma Hematopoietic Cell Proliferation Hyperplasia Pigmentation Atrophy Carcinoma | <ul style="list-style-type: none"> Minimal Mild Moderate Mild Histiocyte, Minimal Plasma Cell, Mild Minimal Minimal Mild Hemosiderin, Mild Mild |
|---|--|--|

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 157

TRT#: 7

SEX: Male

DAY ON TEST: 670

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101958

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Rectum
- * Intestine Small, Ileum
- * Lung
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Preputial Gland
- * Seminal Vesicle
- * Stomach, Forestomach
- * Trachea
- * Urinary Bladder
- Blood Vessel
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Jejunum
- * Mammary Gland
- * Prostate
- * Stomach, Glandular
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Liver
- * Nose
- * Salivary Glands
- * Thyroid Gland

MISSING

- * Parathyroid Gland

AUTO PRECLUDES DIAG.

- * Intestine Small, Duodenum
- * Islets, Pancreatic
- * Pancreas
- * Spleen

OBSERVATIONS

- * Heart
- * Kidney
- * Lymph Node, Mandibular
- * Skin
- [Cyst TGLs = 2-15]
- [Fibrosis TGLs = 1-14]
- * Testes
- * Thymus
- Hair Follicle
- Germinal Epith
- Cardiomyopathy
- Nephropathy
- Atrophy
- Cyst
- Fibrosis
- Atrophy
- Atrophy
- Minimal
- Mild
- Moderate
- Moderate
- Marked
- Marked

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 158

TRT#: 7

SEX: Male

DAY ON TEST: 474

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101959

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--|--------------|-----------------------|----------------------|
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 1-5] | | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 2-3+4] | | | |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 159

TRT#: 7

SEX: Male

DAY ON TEST: 700

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101960

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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, Glandular |
| * Testes | * Thyroid Gland | * Trachea | |

OBSERVATIONS

- | | | | |
|--|---------------|----------------------|----------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| * Bone | Humerus | Osteosarcoma | |
| Note: Telangiectatic osteosarcoma.
[Osteosarcoma TGLs = 1-14] | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Leukemia Mononuclear | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Leukemia Mononuclear | |
| [Leukemia Mononuclear TGLs = 2-15] | | | |
| * Stomach, Forestomach | | Ulcer | Mild |
| [Ulcer TGLs = 3-16] | | | |
| * Thymus | | Atrophy | Marked |
| * Urinary Bladder | | Ulcer | Moderate |

PRIMARY CAUSE OF DEATH - Bone Humerus Osteosarcoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 160

TRT#: 7

SEX: Male

DAY ON TEST: 622

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101961

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Epididymis
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Salivary Glands
- * Thyroid Gland
- * Bone
- * Esophagus
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Seminal Vesicle
- * Trachea
- * Bone Marrow
- * Harderian Gland
- * Intestine Small, Duodenum
- * Liver
- * Preputial Gland
- * Skin
- * Urinary Bladder
- * Brain
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Prostate
- * Testes

AUTO PRECLUDES DIAG.

- * Pancreas

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected.
- * Eye
- * Heart
- * Kidney
[Nephropathy TGLs = 1-5+14]
- * Lung
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Pituitary Gland
- * Spleen
- * Stomach, Forestomach
- * Stomach, Glandular
- * Thymus
- Pheochromocytoma Benign
- Inflammation
- Inflammation
- Necrosis
- Cardiomyopathy
- Mineralization
- Nephropathy
- Inflammation
- Atrophy
- Hyperplasia
- Hyperplasia
- Atrophy
- Pigmentation
- Hyperplasia
- Mineralization
- Atrophy
- Minimal
- Acute, Moderate
- Mild
- Mild
- Minimal
- Marked
- Mild
- Mild
- Mild
- Minimal
- Moderate
- Hemosiderin, Mild
- Marked
- Mild
- Marked

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 161

TRT#: 7

SEX: Male

DAY ON TEST: 363

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101962

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|------------------------------------|-------------------------|-----------------------|
| * Adrenal Medulla | Hyperplasia | Marked |
| Blood Vessel | Pheochromocytoma Benign | |
| Note: Pancreatic vessels affected. | Inflammation | Mild |
| * Brain | Mineralization | Minimal |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Marked |
| [Nephropathy TGLs = 1-14] | | |
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Moderate |
| * Spleen | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Mild |
| * Thyroid Gland | Mineralization | Minimal |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 162

TRT#: 7

SEX: Male

DAY ON TEST: 593

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101963

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | Blood Vessel | * Bone | * Bone Marrow |
| * 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 | * Liver |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|-------------------------------|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Epididymis | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| | Atrium | Thrombosis | Marked |
| | [Thrombosis TGLs = 3-7] | | |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 4-5+15] | | |
| * Lung | | Inflammation | Moderate |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| * Skin | Hair Follicle | Cyst | |
| | [Cyst TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Testes | Bilateral, Germ Cell | Degeneration | Mild |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Heart Atrium Thrombosis

CONTRIBUTORY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 163

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101964

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|------------------------------------|-----------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Basophilic Focus | |
| | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 1-14] | | |
| * Thyroid Gland | C Cell | Adenoma | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 164

TRT#: 7

SEX: Male

DAY ON TEST: 683

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101965

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------------------|--------------|------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Marked |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 165

TRT#: 7

SEX: Male

DAY ON TEST: 735

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101966

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Colon and testes affected.
[Inflammation TGLs = 1-11]
- * Heart
- * Kidney
[Nephropathy TGLs = 5-5+16]
- * Liver
- * Lung
[Infiltration Cellular TGLs = 6-3+4]
- * Lymph Node, Mandibular
- * Pancreas
Acinus
Acinus
[Adenoma TGLs = 4-15]
[Hyperplasia TGLs = 3-14]
- * Pituitary Gland
[Hyperplasia TGLs = 7-17]
- * Spleen
- * Thymus
- * Thyroid Gland
C Cell
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Infiltration Cellular
- Adenoma
- Hyperplasia
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Hyperplasia
- Minimal
- Moderate
- Minimal
- Moderate
- Histiocyte, Minimal
- Plasma Cell, Minimal
- Marked
- Marked
- Minimal
- Hemosiderin, Mild
- Minimal
- Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 166

TRT#: 7

SEX: Male

DAY ON TEST: 735

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101967

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---|----------------|-------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| | | Pheochromocytoma Benign | |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Nose | Respirat Epith | Hyperplasia | Minimal |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Mild |
| Note: TGL 3 described as multiple nodules per IANR. | | | |
| [Adenoma TGLs = 1,2,3-14+15+16] | | | |
| [Hyperplasia TGLs = 3-16] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 167

TRT#: 7

SEX: Male

DAY ON TEST: 737

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101968

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Mild
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Marked
	[Nephropathy TGLs = 5-5+17]		
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[Infiltration Cellular TGLs = 1-3+4]		
* Pancreas	Acinus	Adenoma	Multiple
	[Adenoma TGLs = 2,3,4-14+15+16]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen	Lymph Follic	Hyperplasia	Minimal
		Pigmentation	Hemosiderin, Mild
* Stomach, Forestomach	Epithelium	Hyperplasia	Mild
* Thymus		Hyperplasia	Minimal

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 168

TRT#: 7

SEX: Male

DAY ON TEST: 645

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101969

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Preputial Gland
- * Skin
- * Trachea
- * Bone
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Prostate
- * Stomach, Glandular
- * Urinary Bladder
- * Bone Marrow
- * Harderian Gland
- * Intestine Small, Duodenum
- * Liver
- * Parathyroid Gland
- * Salivary Glands
- * Testes
- * Brain
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Pituitary Gland
- * Seminal Vesicle
- * Thyroid Gland

OBSERVATIONS

- * Adrenal Medulla Bilateral Hyperplasia Mild
- Blood Vessel Inflammation Minimal
- Note: Testes affected.
- * Epididymis Degeneration Mild
- * Heart Cardiomyopathy Mild
- * Kidney Cyst Moderate
- Nephropathy Marked
- [Cyst TGLs = 1-14]
- [Nephropathy TGLs = 2-15]
- * Lung Inflammation Marked
- * Lymph Node, Mesenteric Atrophy Mild
- * Pancreas Acinus Hyperplasia Mild
- * Spleen Hematopoietic Cell Proliferation Minimal
- Pigmentation Hemosiderin, Mild
- * Stomach, Forestomach Epithelium Hyperplasia Mild
- * Thymus Atrophy Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 169

TRT#: 7

SEX: Male

DAY ON TEST: 330

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101970

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|--|-------------|----------------------|----------------------|
| * Eye | Cornea | Inflammation | Acute, Moderate |
| | Cornea | Necrosis | Moderate |
| | Optic Nerve | Schwannoma Malignant | |
| Note: Inflammation, Acute, Moderate also affected the Conjunctiva.
[Inflammation TGLs = 1-14] | | | |
| * Kidney | | Nephropathy | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 170

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101971

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|---|----------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Minimal |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Moderate |
| | Note: TGL 5 described as multiple nodules per IANR. | | |
| | [Adenoma TGLs = 3,5-16+17] | | |
| | [Hyperplasia TGLs = 5-17] | | |
| * Skin | Hair Follicle | Cyst | |
| | | Inflammation | Marked |
| | Note: Abscess. | | |
| | [Cyst TGLs = 1-14] | | |
| | [Inflammation TGLs = 2-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Adenoma | |
| | C Cell | Carcinoma | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 171

TRT#: 7

SEX: Male

DAY ON TEST: 735

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101972

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * 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 |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------------------------------|-----------------------------------|----------------------------------|------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Brain | Cerebrum | Meningioma Malignant | |
| [Meningioma Malignant | TGLs = 1-14] | | |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | Bile Duct | Hyperplasia | Marked |
| Note: Lumen contains cholelith. | | | |
| [Hyperplasia | TGLs = 7-20] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| [Adenoma | TGLs = 2,3,4,5,6-15+16+17+18+19] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 172

TRT#: 7

SEX: Male

DAY ON TEST: 735

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101973

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Kidney
 - Renal Tubule
 - Adenoma
 - Nephropathy
 - [Adenoma TGLs = 1-14]
- * Liver
 - Eosinophilic Focus
 - Infiltration Cellular
- * Lymph Node, Mandibular
 - Plasma Cell, Minimal
- * Pancreas
 - Acinus
 - Hyperplasia
 - Mild
- * Pituitary Gland
 - Pars Distalis
 - Hyperplasia
 - Mild
- * Spleen
 - Hematopoietic Cell Proliferation
 - Minimal
 - Pigmentation
 - Hemosiderin, Minimal
- * Testes
 - Seminif Tub
 - Dilation
 - Mild
- * Thymus
 - [Dilation TGLs = 2-15]
 - Atrophy
 - Moderate

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 173

TRT#: 7

SEX: Male

DAY ON TEST: 461

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101974

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------------|---------------|-------------|----------|
| * Bone Marrow | | Atrophy | Marked |
| * Kidney | | Nephropathy | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 1-14] | | | |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 174

TRT#: 7

SEX: Male

DAY ON TEST: 436

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101975

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Cortex
 - Blood Vessel
 - Note: Pancreatic vessels affected.
 - * Heart
 - * Kidney
 - [Nephropathy TGLs = 1-14]
 - * Lung
 - Lymph Node
 - [Hemorrhage TGLs = 2-15]
 - [Hemorrhage TGLs = 3-16]
 - * Spleen
 - Lymph Follic
 - Hematopoietic Cell Proliferation
 - Hyperplasia
 - Pigmentation
 - Atrophy
 - * Thymus
- Thrombosis
Inflammation
Cardiomyopathy
Nephropathy
Inflammation
Hemorrhage
Hemorrhage
Hemorrhage
Hemorrhage
Minimal
Mild
Mild
Marked
Marked
Moderate
Mild
Minimal
Minimal
Hemosiderin, Minimal
Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

CONTRIBUTORY CAUSE OF DEATH - Lung Inflammation

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 175

TRT#: 7

SEX: Male

DAY ON TEST: 644

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101976

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Esophagus
- * Harderian Gland
- * Intestine Large, Cecum
- * Intestine Large, Rectum
- * Intestine Small, Duodenum
- * Intestine Small, Ileum
- * Islets, Pancreatic
- * Liver
- * Lung
- * Lymph Node, Mesenteric
- * Mammary Gland
- * Nose
- * Preputial Gland
- * Prostate
- * Salivary Glands
- * Skin
- * Stomach, Glandular
- * Testes
- * Urinary Bladder
- * Epididymis
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pituitary Gland
- * Seminal Vesicle
- * Trachea

MISSING

- * Thymus

OBSERVATIONS

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> Blood Vessel <li style="padding-left: 20px;">Note: Duodenum affected. <li style="padding-left: 20px;">Note: Testes affected. * Bone * Brain * Eye * Heart * Kidney <li style="padding-left: 40px;">[Cyst TGLs = 2-5+15] <li style="padding-left: 40px;">[Nephropathy TGLs = 1-5+14+15] * Pancreas * Parathyroid Gland * Spleen * Stomach, Forestomach * Thyroid Gland | <ul style="list-style-type: none"> Inflammation Fibrous Osteodystrophy Edema Mineralization Inflammation Necrosis Cardiomyopathy Cyst Nephropathy Hyperplasia Hyperplasia Hematopoietic Cell Proliferation Pigmentation Hyperplasia Hyperplasia | <ul style="list-style-type: none"> Mild Moderate Mild Mild Chronic Active, Moderate Mild Moderate Moderate Marked Minimal Mild Mild Hemosiderin, Mild Mild Marked |
|---|--|--|

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 175

TRT#: 7

SEX: Male

DAY ON TEST: 644

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101976

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 176

TRT#: 7

SEX: Male

DAY ON TEST: 420

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101977

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|---------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 3-16] | | |
| * Lymph Node, Mesenteric | | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 4-17] | | |
| * Skin | Subcut Tiss | Schwannoma Malignant | |
| | [Schwannoma Malignant TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | [Hematopoietic Cell Proliferation TGLs = 2-15] | | |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 177

TRT#: 7

SEX: Male

DAY ON TEST: 680

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101978

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - Hyperplasia
 - Pheochromocytoma Benign
 Minimal
- [Pheochromocytoma Benign TGLs = 2-8]
- Blood Vessel
 - Inflammation
 Minimal
 - Note: Testes affected.
- * Bone Marrow
 - Myelofibrosis
 Minimal
- * Epididymis
 - Degeneration
 Mild
- * Heart
 - Cardiomyopathy
 - Thrombosis
 Mild
- Atrium
 - Nephropathy
 Marked
- * Kidney
 - Nephropathy
 Marked
 - [Nephropathy TGLs = 1-5+14]
- * Lung
 - Inflammation
 Marked
- * Parathyroid Gland
 - Hyperplasia
 Mild
- * Spleen
 - Hematopoietic Cell Proliferation
 - Pigmentation
 Mild
- * Thymus
 - Atrophy
 Marked

PRIMARY CAUSE OF DEATH - Heart Atrium Thrombosis

CONTRIBUTORY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 178

TRT#: 7

SEX: Male

DAY ON TEST: 562

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101979

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * 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 | * Liver | * Lung | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|----------------------------------|----------------------------------|-------------------|
| * Brain | Granular Cell Tumor Malignant | |
| * Kidney | Nephropathy | Minimal |
| * Lymph Node, Mandibular | Hyperplasia | Mild |
| * Lymph Node, Mesenteric | Hyperplasia | Mild |
| Skeletal Muscle | Rhabdomyosarcoma | |
| [Rhabdomyosarcoma TGLs = 1-14] | | |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Skeletal Muscle Rhabdomyosarcoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 179

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101980

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|--|---------------|-----------------------|---------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 2-3+4] | | | |
| * Lymph Node, Mandibular | | Ectasia | Mild |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Minimal |
| [Adenoma TGLs = 3-15] | | | |
| * Skin | Hair Follicle | Cyst | |
| | Subcut Tiss | Fibroma | |
| Note: Fibrolipoma. | | | |
| [Cyst TGLs = 1-14] | | | |
| [Fibroma TGLs = 4-16] | | | |
| * Spleen | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 179

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101980

ORGAN AND ACCOUNTABLE SITE STATUS

* Thyroid Gland

C Cell

Hyperplasia

Minimal

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 180

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101981

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Pancreas | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|------------------------|---------------|------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Mixed Cell Focus | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 181

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101982

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------------------|---------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 1-14] | | | |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 182

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101983

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------|-----------------------------|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Pheochromocytoma Benign | |
| Note: Testes affected. | | Inflammation | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 1-14] | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 183

TRT#: 7

SEX: Male

DAY ON TEST: 636

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101984

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 |
| * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|--|------------|---------------------------|----------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Cyst | Marked |
| | | Nephropathy | Moderate |
| [Cyst TGLs = 1-14] | | | |
| * Liver | Hepatocyte | Vacuolization Cytoplasmic | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 2-3+4] | | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Minimal |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 184

TRT#: 7

SEX: Male

DAY ON TEST: 735

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101985

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
- * Heart
- * Kidney
- * Liver
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Pancreas
- Note: TGL 2 described as multiple nodules per IANR.
 [Adenoma TGLs = 2,3-15+16]
 [Hyperplasia TGLs = 2-15]
- * Pituitary Gland
- * Skin
- Note: Hamartomatous configuration of skeletal muscle and subcutaneous adipose tissue.
 [Dysplasia TGLs = 1-14]
- * Spleen
- * Testes
- [Atrophy TGLs = 4-11]
- Endocardium
- Acinus
- Acinus
- Pars Distalis
- Germinal Epith
- Pheochromocytoma Benign
- Cardiomyopathy
- Schwannoma Malignant
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Inflammation
- Adenoma
- Hyperplasia
- Hyperplasia
- Dysplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Mild
- Moderate
- Mild
- Granulomatous, Mild
- Multiple
- Mild
- Mild
- Marked
- Minimal
- Hemosiderin, Mild
- Moderate

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 185

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101986

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|---|-----------|----------------------------------|-------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Moderate |
| Note: TGL 4 described as multiple nodules per IANR. | | | |
| [Adenoma TGLs = 2,3,4-14+15+16] | | | |
| [Hyperplasia TGLs = 4-16] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 186

TRT#: 7

SEX: Male

DAY ON TEST: 565

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101987

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* 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, Mesenteric
* Mammary Gland	* Nose	* Parathyroid Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Hepatodiaphragmatic Nodule	
	[Hepatodiaphragmatic Nodule TGLs = 1-14]		
* Lymph Node, Mandibular		Hyperplasia	Mild
		Infiltration Cellular	Histiocyte, Minimal
* Pancreas	Acinus	Atrophy	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
* Spleen	Lymph Follic	Atrophy	Mild
		Pigmentation	Hemosiderin, Mild
* Testes	Germinal Epith	Atrophy	Minimal
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Hyperplasia	Marked

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Hyperplasia

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 187

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101988

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------------|----------------|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | Alveolar Epith | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 188

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101989

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-14] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 189

TRT#: 7

SEX: Male

DAY ON TEST: 680

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101990

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

AUTO PRECLUDES DIAG.

- * Spleen

OBSERVATIONS

- | | | | |
|--------------------------------|---------------|----------------|----------|
| * Adrenal Medulla | | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Eye | | Atrophy | Moderate |
| [Atrophy TGLs = 1-14] | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Intestine Small, Jejunum | | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 3-16] | | | |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 2-15] | | | |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Marked |

PRIMARY CAUSE OF DEATH - Intestine Small, Jejunum Adenocarcinoma

CONTRIBUTORY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 190

TRT#: 7

SEX: Male

DAY ON TEST: 737

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101991

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Trachea |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Moderate |
| | [Nephropathy TGLs = 4-5+17] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 6-3+4] | | |
| Lymph Node | Inguinal | Ectasia | Marked |
| | [Ectasia TGLs = 2-15] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 3-16] | | |
| * Preputial Gland | | Carcinoma | |
| | [Carcinoma TGLs = 1-14] | | |
| * Prostate | | Inflammation | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 5-18] | | |
| * Urinary Bladder | | Inflammation | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 191

TRT#: 7

SEX: Male

DAY ON TEST: 671

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101992

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Prostate
- * Stomach, Glandular
- * Trachea
- Blood Vessel
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Salivary Glands
- * Testes
- * Urinary Bladder
- * Bone
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Parathyroid Gland
- * Seminal Vesicle
- * Thymus
- * Bone Marrow
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Stomach, Forestomach
- * Thyroid Gland

OBSERVATIONS

- * Adrenal Cortex
- * Brain
- * Heart
- * Kidney
- * Liver
- * Lung
- * Lymph Node, Mandibular
- * Pancreas
- * Pituitary Gland
- * Skin
- * Spleen
- Cerebrum
- Bile Duct
- Acinus
- Pars Intermed
- Pars Distalis
- Lymph Follic
- Hyperplasia
- Oligodendroglioma Malignant
- Cardiomyopathy
- Nephropathy
- Fatty Change
- Hyperplasia
- Inflammation
- Infiltration Cellular
- Infiltration Cellular
- Atrophy
- Hyperplasia
- Hyperplasia
- Ulcer
- Hyperplasia
- Pigmentation
- Mild
- Mild
- Minimal
- Mild
- Mild
- Mild
- Mild
- Histiocyte, Mild
- Plasma Cell, Mild
- Mild
- Marked
- Mild
- Minimal
- Mild
- Hemosiderin, Mild

PRIMARY CAUSE OF DEATH - Brain Cerebrum Oligodendroglioma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 192

TRT#: 7

SEX: Male

DAY ON TEST: 737

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101993

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|----------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | Pelvis | Inflammation | Chronic Active, Mild |
| | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Skin | Hair Follicle | Cyst | |
| [Cyst TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 193

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101994

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|---|--------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| [Pheochromocytoma Benign TGLs = 5-18] | | | |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 3-5+16] | | | |
| * Mammary Gland | | Fibroma | |
| [Fibroma TGLs = 2-15] | | | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Moderate |
| Note: TGL 4 described as multiple nodules per IANR. | | | |
| [Adenoma TGLs = 4-17] | | | |
| [Hyperplasia TGLs = 4-17] | | | |
| * Skin | Epidermis | Hyperplasia | Marked |
| [Hyperplasia TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 194

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101995

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--------|----------------------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pancreas | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 195

TRT#: 7

SEX: Male

DAY ON TEST: 635

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101996

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|------------------------|---------------|----------------|----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Moderate |
| * Kidney | | Nephropathy | Marked |
| * Lung | | Inflammation | Moderate |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 196

TRT#: 7

SEX: Male

DAY ON TEST: 680

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1101997

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|------------------------|--------|--------------|-------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Kidney | | Nephropathy | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 197

TRT#: 7

SEX: Male

DAY ON TEST: 725

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1101998

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------------------|---------------|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Carcinoma | |
| [Carcinoma TGLs = 3-16] | | | |
| * Kidney | | Nephropathy | Mild |
| [Nephropathy TGLs = 5-5] | | | |
| * Lung | | Inflammation | Mild |
| * Pancreas | Acinus | Adenoma | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 2-15] | | | |
| Skeletal Muscle | | Schwannoma Malignant | |
| [Schwannoma Malignant TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 198

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101999

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal 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 | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|---|-------------------|----------------------------------|--------------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Eye | Bilateral, Cornea | Inflammation | Chronic Active, Moderate |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Cyst | Mild |
| | | Nephropathy | Marked |
| [Cyst TGLs = 8-20] | | | |
| [Nephropathy TGLs = 7-20] | | | |
| * Liver | | Clear Cell Focus | |
| * Lung | | Inflammation | Mild |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Hyperplasia | Marked |
| Note: TGL 6 described as multiple nodules per IANR. | | | |
| [Adenoma TGLs = 1,2,4,5,6-14+15+17+18+19] | | | |
| [Hyperplasia TGLs = 3,6-16+19] | | | |
| * Parathyroid Gland | | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 198

TRT#: 7

SEX: Male

DAY ON TEST: 736

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1101999

ORGAN AND ACCOUNTABLE SITE STATUS

Pigmentation

Hemosiderin, Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 199

TRT#: 7

SEX: Male

DAY ON TEST: 670

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102000

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal 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 |
| * Liver | * Lung | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---|---------------|-------------------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Kidney | | Nephropathy | Moderate |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| [Infiltration Cellular TGLs = 1-14] | | | |
| Oral Mucosa | | Squamous Cell Carcinoma | |
| [Squamous Cell Carcinoma TGLs = 2-15] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |

PRIMARY CAUSE OF DEATH - Oral Mucosa Squamous Cell Carcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 200

TRT#: 7

SEX: Male

DAY ON TEST: 713

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102001

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - Hyperplasia Moderate
 - Pheochromocytoma Malignant
 - [Pheochromocytoma Malignant TGLs = 3-8]
 - Blood Vessel
 - Inflammation Minimal
 - Note: Testes affected.
- * Heart
 - Cardiomyopathy Moderate
- * Kidney
 - Nephropathy Moderate
 - [Nephropathy TGLs = 5-5]
- * Liver
 - Clear Cell Focus
 - Pheochromocytoma Malignant Metastatic (Adrenal Medulla)
 - Note: Neoplasm is more located in perihepatic fat than within the liver parenchyma itself.
 - [Pheochromocytoma Malignant TGLs = 2-15]
- * Lung
 - Inflammation Minimal
- * Pancreas
 - Acinus
 - Hyperplasia Marked
 - [Hyperplasia TGLs = 4-16]
- * Skin
 - Basal Cell Adenoma
 - [Basal Cell Adenoma TGLs = 1-14]
- * Spleen
 - Pigmentation Hemosiderin, Mild
- * Thymus
 - Atrophy Marked

PRIMARY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 201

TRT#: 9

SEX: Male

DAY ON TEST: 715

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102002

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
 - [Pheochromocytoma Benign TGLs = 3-16]
 - Blood Vessel
 - Note: Stomach and testes affected.
 - * Brain
 - * Eye
 - Bilateral, Cornea
 - * Heart
 - * Kidney
 - Renal Tubule
 - [Adenoma TGLs = 4-17+18]
 - [Nephropathy TGLs = 5-18]
 - * Pancreas
 - Acinus
 - [Hyperplasia TGLs = 2-15]
 - * Parathyroid Gland
 - * Pituitary Gland
 - * Skin
 - Pars Distalis
 - Hair Follicle
 - [Cyst TGLs = 1-14]
 - * Spleen
- Pheochromocytoma Benign
- Inflammation
- Edema
- Inflammation
- Cardiomyopathy
- Adenoma
- Nephropathy
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Cyst
- Hematopoietic Cell Proliferation
- Pigmentation
- Mild
- Chronic Active, Moderate
- Mild
- Marked
- Moderate
- Mild
- Minimal
- Mild
- Hemosiderin, Mild

PRIMARY CAUSE OF DEATH - Kidney Renal Tubule Adenoma

CONTRIBUTORY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Benign

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 202

TRT#: 9

SEX: Male

DAY ON TEST: 362

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102003

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|-------------------|-------------------|------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Lung | * Mammary Gland |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |

MISSING

- | | |
|--------------------------|--------------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
|--------------------------|--------------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver |
| * Nose | * Pancreas | * Spleen | * Urinary Bladder |

OBSERVATIONS

- | | | |
|---------------|-------------|---------|
| * Bone Marrow | Atrophy | Mild |
| * Kidney | Nephropathy | Minimal |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 203

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102004

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|----------------------|-------------------------|----------------------------------|----------|
| * Islets, Pancreatic | | Carcinoma | |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Minimal |
| | [Adenoma TGLs = 3-15] | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-14] | | |
| * Skin | | Ulcer | Marked |
| | [Ulcer TGLs = 1-16] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 204

TRT#: 9

SEX: Male

DAY ON TEST: 704

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102005

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

AUTO PRECLUDES DIAG.

- | | |
|---------|------------|
| * Liver | * Pancreas |
|---------|------------|

OBSERVATIONS

- | | | | |
|-------------------|--------------|----------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Spleen | Lymph Follic | Atrophy | Moderate |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 205

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102006

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-----------------------------|-----------|----------------------------------|-----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 2-15] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Carcinoma | |
| [Carcinoma TGLs = 1-14] | | | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 206

TRT#: 9

SEX: Male

DAY ON TEST: 412

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102007

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|---------------|----------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 207

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102008

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal 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 | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---|---------------|----------------------------------|----------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| [Pheochromocytoma Benign | TGLs = 2-15] | | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Bone Marrow | | Atrophy | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Mild |
| Note: TGL 1 described multiple nodules on IANR. | | | |
| [Adenoma | TGLs = 1-14] | | |
| [Hyperplasia | TGLs = 1-14] | | |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 208

TRT#: 9

SEX: Male

DAY ON TEST: 642

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102009

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|----------------------|--------|------------------|----------|
| * Islets, Pancreatic | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 209

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102010

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|----------|----------------|------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Testes | Germinal Epith | Atrophy | Marked |
- [Atrophy TGLs = 1-11]

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 210

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102011

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|---|----------------------------------|-------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | | Fatty Change | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Marked |
| | [Adenoma TGLs = 2-15] | | |
| | [Hyperplasia TGLs = 3-16] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Skin | | Cyst Epithelial Inclusion | |
| | [Cyst Epithelial Inclusion TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 211

TRT#: 9

SEX: Male

DAY ON TEST: 405

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102012

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-------------------|-------------------|--------------------------|----------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * Brain | * Epididymis | * Esophagus |
| * Eye | * Harderian Gland | * Heart | * Islets, Pancreatic |
| * Liver | * Lung | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

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 |

OBSERVATIONS

- | | | | |
|--------------------------|--------------|--------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Atrophy | Moderate |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 212

TRT#: 9

SEX: Male

DAY ON TEST: 649

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102013

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|------------------------|--|----------------------------------|----------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Moderate |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 1-14+15] | | |
| * Liver | Hepatocyte | Vacuolization Cytoplasmic | Moderate |
| | [Vacuolization Cytoplasmic TGLs = 2-6+7] | | |
| * Pancreas | Acinus | Atrophy | Marked |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 4-16] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| | | Ulcer | Mild |
| | [Hyperplasia TGLs = 5-17] | | |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | Follicular Cel | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy
 CONTRIBUTORY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 213

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102014

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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
* Lymph Node, Mandibular	* Mammary Gland	* Nose	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla	Bilateral	Hyperplasia	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Mild
* Liver		Clear Cell Focus	
	[Clear Cell Focus TGLs = 2-6]		
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[Infiltration Cellular TGLs = 3-3+4]		
* Lymph Node, Mesenteric		Hyperplasia	Mild
* Pancreas	Acinus	Adenoma	
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Mild
		Inflammation	Chronic Active, Mild
	[Adenoma TGLs = 5-15]		
	[Hyperplasia TGLs = 1,4-6+14]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Pigmentation	Hemosiderin, Mild
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 214

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102015

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * 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 |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--|--------|------------------|---------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Infarct | Chronic, Mild |
| | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mesenteric | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroma | |
| [Fibroma TGLs = 1-14] | | | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Mild |
| Note: TGL 2 describes multiple nodules per IANR. | | | |
| [Adenoma TGLs = 2-15] | | | |
| [Hyperplasia TGLs = 2-15] | | | |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 215

TRT#: 9

SEX: Male

DAY ON TEST: 628

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102016

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|----------------------------|---------|-------------------|
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Liver | * Pituitary Gland |
| * Spleen | | | |

OBSERVATIONS

- | | | | |
|------------|-----------------------|----------------|---------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Infarct | Chronic, Mild |
| | | Nephropathy | Minimal |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Skin | | Ulcer | Moderate |
| | [Ulcer TGLs = 1-14] | | |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 216

TRT#: 9

SEX: Male

DAY ON TEST: 735

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102017

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Clear Cell Focus
- * Lymph Node, Mandibular Fatty Change Minimal
- * Pancreas Hyperplasia Mild
- Acinus Adenoma Multiple
- Acinus Hyperplasia Moderate
- [Adenoma TGLs = 1,2,3,5-14+15+16+18]
- [Hyperplasia TGLs = 4-17]
- * Pituitary Gland Pars Distalis Adenoma
- * Spleen Hematopoietic Cell Proliferation Minimal
- Pigmentation Hemosiderin, Mild
- * Testes Atrophy Minimal
- * Thymus Atrophy Moderate

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 217

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102018

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|-------------------------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Moderate |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lung | | Inflammation | Minimal |
| | [Inflammation TGLs = 1-3+4] | | |
| * Pancreas | Acinus | Basophilic Focus | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 2-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01
 Test Type: CHRONIC
 Route: DOSED FEED
 Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA
 Zinc Carbonate, Basic
 CAS Number: 5263-02-5

Date Report Requested: 05/25/2016
 Time Report Requested: 10:06:20
 First Dose M/F: 09/03/09 / 09/04/09
 Lab: BAT

ANIMAL ID: 218

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102019

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|---|------------------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign
Pheochromocytoma Malignant | |
| | [Pheochromocytoma Malignant TGLs = 3-15] | | |
| Blood Vessel | | Inflammation | Mild |
| | Note: Testes, stomach, and colon affected. | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Marked |
| | [Nephropathy TGLs = 2-5] | | |
| * Lung | | Infiltration Cellular
Inflammation | Histiocyte, Mild
Moderate |
| | [Infiltration Cellular TGLs = 1-3+14] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Minimal |
| * Pancreas | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 219

TRT#: 9

SEX: Male

DAY ON TEST: 735

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102020

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------------------|--------|-----------------------|---------------------|
| * Adrenal Cortex | | Hyperplasia | Moderate |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Islets, Pancreatic | | Hyperplasia | Minimal |
| * Kidney | | Infarct | Chronic, Mild |
| | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| [Clear Cell Focus TGLs = 2-15] | | | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 4-4] | | | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| [Hyperplasia TGLs = 1-14] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Hyperplasia | Mild |
| [Hyperplasia TGLs = 3-16] | | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 220

TRT#: 9

SEX: Male

DAY ON TEST: 735

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102021

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Atrophy | Mild |
| | Acinus | Hyperplasia | Moderate |
| | [Adenoma TGLs = 1-14] | | |
| | [Hyperplasia TGLs = 2-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 221

TRT#: 9

SEX: Male

DAY ON TEST: 541

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102022

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- | | |
|-------|-------------------|
| * Eye | * Harderian Gland |
|-------|-------------------|

AUTO PRECLUDES DIAG.

- | | |
|--------------------------|--------------------------|
| * Intestine Large, Cecum | * Intestine Small, Ileum |
|--------------------------|--------------------------|

OBSERVATIONS

- | | | |
|------------------------------|--------------|---------|
| * Kidney | Nephropathy | Mild |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-14] | | |
| * Thymus | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 222

TRT#: 9

SEX: Male

DAY ON TEST: 737

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102023

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|--------------------------------------|--------------|----------------------------------|----------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Intestine Small, Jejunum | Peyers Patch | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 2-4] | | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Minimal |
| * Pancreas | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 223

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102024

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| | [Nephropathy TGLs = 3-5] | | |
| * Liver | | Atrophy | Mild |
| | [Atrophy TGLs = 4-15] | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| | [Infiltration Cellular TGLs = 1-9] | | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 2-14] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| Tooth | | Inflammation | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 223

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102024

ORGAN AND ACCOUNTABLE SITE STATUS

Necrosis

Minimal

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 224

TRT#: 9

SEX: Male

DAY ON TEST: 681

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102025

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------------|---------------|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Moderate |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Pancreas | Acinus | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 1-14] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |
| Tooth | | Necrosis | Minimal |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 225

TRT#: 9

SEX: Male

DAY ON TEST: 526

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102026

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--------|-----------------------|-------------------|
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | | Inflammation | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 226

TRT#: 9

SEX: Male

DAY ON TEST: 665

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102027

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|----------------|-----------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Atrophy | Moderate |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Marked |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Testes | Germinal Epith | Atrophy | Moderate |

[Atrophy TGLs = 1-11]

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 227

TRT#: 9

SEX: Male

DAY ON TEST: 649

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102028

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|---|----------------------------------|---------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hematopoietic Cell Proliferation | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Nose | Respirat Epith | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Skin | | Squamous Cell Carcinoma | |
| | [Squamous Cell Carcinoma TGLs = 1-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| * Testes | Germinal Epith | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Skin Squamous Cell Carcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 228

TRT#: 9

SEX: Male

DAY ON TEST: 597

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102029

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Mammary Gland |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|----------------------------------|----------------------------------|----------------------|
| * Bone | Femur | Osteosarcoma | |
| | [Osteosarcoma TGLs = 1-14] | | |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Hemorrhage | Marked |
| | | Osteosarcoma | Metastatic (Bone) |
| | [Osteosarcoma TGLs = 2-3+4+15] | | |
| * Lymph Node, Mesenteric | | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| * Skin | | Cyst Epithelial Inclusion | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Adenoma | |
| | [Adenoma TGLs = 3-16] | | |

PRIMARY CAUSE OF DEATH - Bone Femur Osteosarcoma

CONTRIBUTORY CAUSE OF DEATH - Lung Hemorrhage

- Lung Osteosarcoma Bone

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 229

TRT#: 9

SEX: Male

DAY ON TEST: 637

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102030

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Kidney | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--------------|----------------|---------|
| * Heart | | Cardiomyopathy | Mild |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Nose | | Inflammation | Minimal |
| * Spleen | Lymph Follic | Atrophy | Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 230

TRT#: 9

SEX: Male

DAY ON TEST: 418

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102031

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

AUTO PRECLUDES DIAG.

- * Spleen

OBSERVATIONS

- | | | |
|------------|--------------|-------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Inflammation | Moderate |
| * Pancreas | Inflammation | Acute, Mild |
| * Thymus | Atrophy | Marked |

PRIMARY CAUSE OF DEATH

- Liver Inflammation

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 231

TRT#: 9

SEX: Male

DAY ON TEST: 691

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102032

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
Blood Vessel
Note: Testes affected
- * Eye
- * Heart
- * Kidney
[Nephropathy TGLs = 1-14]
- * Lung
[Inflammation TGLs = 2-3+4]
- * Lymph Node, Mandibular
- * Spleen
- * Thymus
- Cornea
- Hyperplasia
- Inflammation
- Inflammation
- Cardiomyopathy
- Nephropathy
- Inflammation
- Hyperplasia
- Pigmentation
- Atrophy
- Minimal
- Mild
- Acute, Minimal
- Mild
- Marked
- Moderate
- Mild
- Hemosiderin, Mild
- Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 232

TRT#: 9

SEX: Male

DAY ON TEST: 718

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102033

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Liver | * Lymph Node, Mandibular | * Mammary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------------|---------------|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| Blood Vessel | | Inflammation | Mild |
| Note: Testes affected. | | | |
| * Eye | Cornea | Inflammation | Chronic Active, Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Small, Jejunum | | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 1-14] | | | |
| * Islets, Pancreatic | | Hyperplasia | Marked |
| * Kidney | | Nephropathy | Moderate |
| [Nephropathy TGLs = 2-5] | | | |
| * Lung | | Inflammation | Moderate |
| [Inflammation TGLs = 1-3+4] | | | |
| * Lymph Node, Mesenteric | | Hyperplasia | Mild |
| [Hyperplasia TGLs = 1-15] | | | |
| * Nose | | Inflammation | Minimal |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Parathyroid Gland | | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | | Ulcer | Mild |
| * Thymus | | Atrophy | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 232

TRT#: 9

SEX: Male

DAY ON TEST: 718

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102033

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Intestine Small, Jejunum Adenocarcinoma

CONTRIBUTORY CAUSE OF DEATH

- Kidney Nephropathy

- Lung Inflammation

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 233

TRT#: 9

SEX: Male

DAY ON TEST: 645

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102034

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Kidney
- * Liver
- * Lymph Node, Mandibular
- * Pituitary Gland
- [Adenoma TGLs = 1-14]
- * Spleen
- * Testes
- * Thymus
- Nephropathy
- Fatty Change
- Infiltration Cellular
- Adenoma
- Pars Distalis
- Bilateral, Germ Cell
- Pigmentation
- Degeneration
- Atrophy
- Mild
- Moderate
- Plasma Cell, Mild
- Hemosiderin, Mild
- Mild
- Moderate

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 234

TRT#: 9

SEX: Male

DAY ON TEST: 734

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102035

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-----------------|---------------------------------------|----------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Leukemia Mononuclear | |
| * Pancreas | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 1,2,3-14+15+16] | | |
| * Spleen | | Leukemia Mononuclear | |
| | | Pigmentation | Hemosiderin, Minimal |
| | [Leukemia Mononuclear TGLs = 4-5] | | |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Adenoma | |
| | [Adenoma TGLs = 5-8] | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 235

TRT#: 9

SEX: Male

DAY ON TEST: 599

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102036

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * 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 |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|---------------|----------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 236

TRT#: 9

SEX: Male

DAY ON TEST: 660

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102037

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* 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, Mesenteric	* Mammary Gland	* Nose
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
* Lymph Node, Mandibular		Hyperplasia	Mild
* Pancreas	Acinus	Atrophy	Mild
* Skin	[Basal Cell Carcinoma TGLs = 1-14]	Basal Cell Carcinoma	
* Spleen		Hematopoietic Cell Proliferation	Minimal
	Lymph Follic	Hyperplasia	Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH - Skin Basal Cell Carcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 237

TRT#: 9

SEX: Male

DAY ON TEST: 729

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102038

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- | | | | |
|--------------------------------|-------------|----------------|----------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Intestine Small, Jejunum | | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 5-17] | | | |
| * Kidney | | Nephropathy | Marked |
| [Nephropathy TGLs = 3-5+16] | | | |
| Lymph Node | Mediastinal | Ectasia | Minimal |
| [Ectasia TGLs = 6-18] | | | |
| * Pancreas | Acinus | Adenoma | |
| | Acinus | Hyperplasia | Moderate |
| [Adenoma TGLs = 1-14] | | | |
| [Hyperplasia TGLs = 2-15] | | | |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 238

TRT#: 9

SEX: Male

DAY ON TEST: 704

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102039

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Rectum
- * Intestine Small, Duodenum
- * Islets, Pancreatic
- * Liver
- * Preputial Gland
- * Prostate
- * Stomach, Glandular
- * Testes
- Blood Vessel
- * Epididymis
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Seminal Vesicle
- * Trachea
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Stomach, Forestomach
- * Urinary Bladder

MISSING

- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Salivary Glands
- * Thyroid Gland

AUTO PRECLUDES DIAG.

- * Spleen

OBSERVATIONS

- * Heart
- * Kidney
- * Lung
- [Infiltration Cellular TGLs = 2-3+4]
- * Nose
- * Pancreas
- [Hyperplasia TGLs = 3,4-15+16]
- * Pituitary Gland
- * Skin
- [Cyst TGLs = 1-14]
- * Thymus
- Cardiomyopathy
- Nephropathy
- Infiltration Cellular
- Inflammation
- Hyperplasia
- Adenoma
- Cyst
- Atrophy
- Mild
- Mild
- Histiocyte, Minimal
- Minimal
- Mild
- Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 239

TRT#: 9

SEX: Male

DAY ON TEST: 669

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102040

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------|-------------------|
| * Adrenal Medulla | | Pheochromocytoma Malignant | |
| | [Pheochromocytoma Malignant TGLs = 1-14] | | |
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Moderate |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Malignant

CONTRIBUTORY CAUSE OF DEATH - Kidney Nephropathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 240

TRT#: 9

SEX: Male

DAY ON TEST: 735

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102041

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|-------------------------|----------------------------------|-------------------|
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Adenoma | Multiple |
| | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Minimal |
| | [Adenoma TGLs = 2-15] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 241

TRT#: 9

SEX: Male

DAY ON TEST: 707

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102042

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------------------------|---------------|----------------------------------|-----------------------|
| Blood Vessel | | Inflammation | Minimal |
| Note: Testes affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Islets, Pancreatic | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Mild |
| [Nephropathy TGLs = 1-5] | | | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Pancreas | Acinus | Hyperplasia | Moderate |
| [Hyperplasia TGLs = 2-14] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 242

TRT#: 9

SEX: Male

DAY ON TEST: 737

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102043

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * 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 | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--|----------|-----------------------|-------------------|
| * Brain | Cerebrum | Gliosis | Moderate |
| Note: Atypical astrocyte proliferation in rostral section. | | | |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Pancreas | Acinus | Atrophy | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 243

TRT#: 9

SEX: Male

DAY ON TEST: 737

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102044

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Blood Vessel | * 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pancreas | Acinus | Basophilic Focus | |
| | Acinus | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 3-14] | | |
| * Parathyroid Gland | | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 2-8] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 244

TRT#: 9

SEX: Male

DAY ON TEST: 715

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102045

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|--|---------------------------|-----------------------|----------------------|
| * Adrenal Medulla | Bilateral | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Intestine Large, Cecum | Epithelium | Necrosis | Mild |
| * Intestine Small, Jejunum | | Adenocarcinoma | |
| Note: Neoplasm is partially mineralized. | | | |
| [Adenocarcinoma TGLs = 1-14] | | | |
| * Kidney | | Nephropathy | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 2-3+4] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | Lymph Follic | Atrophy | Moderate |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Testes | Bilateral, Germinal Epith | Atrophy | Moderate |
| [Atrophy TGLs = 3-11] | | | |

PRIMARY CAUSE OF DEATH - Intestine Small, Jejunum Adenocarcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 245

TRT#: 9

SEX: Male

DAY ON TEST: 593

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102046

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Stomach, Forestomach | * Testes |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|----------------------|--------|----------------------------------|-------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Glandular | | Mineralization | Minimal |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 246

TRT#: 9

SEX: Male

DAY ON TEST: 717

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102047

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--|--------|----------------------------------|-----------------------|
| * Adrenal Medulla
[Pheochromocytoma Malignant TGLs = 3-15] | | Pheochromocytoma Malignant | |
| Blood Vessel
Note: Testes affected. | | Inflammation | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Islets, Pancreatic | | Adenoma | |
| * Kidney | | Nephropathy | Moderate |
| * Lymph Node, Mandibular
[Infiltration Cellular TGLs = 2-9] | | Infiltration Cellular | Plasma Cell, Moderate |
| Oral Mucosa | | Hyperplasia | Mild |
| * Pancreas
[Hyperplasia TGLs = 4-16] | Acinus | Hyperplasia | Moderate |
| * Skin
[Hyperplasia TGLs = 1-14] | Pinna | Hyperplasia | Squamous, Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 247

TRT#: 9

SEX: Male

DAY ON TEST: 355

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102048

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--------------------------|-------------------|-------------------|
| * Heart | Cardiomyopathy | Mild |
| * Intestine Large, Colon | Parasite Metazoan | Minimal |
| * Kidney | Nephropathy | Mild |
| * Lymph Node, Mandibular | Hyperplasia | Moderate |
| * Spleen | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 248

TRT#: 9

SEX: Male

DAY ON TEST: 735

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102049

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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, Mesenteric	* Nose	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

- * Mammary Gland

OBSERVATIONS

* Adrenal Medulla	Bilateral	Hyperplasia	Minimal
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Mild
* Liver		Clear Cell Focus	
Lymph Node	Pancreatic	Hemorrhage	Moderate
	Pancreatic	Hyperplasia	Mild
	[Hemorrhage TGLs = 2-15]		
* Lymph Node, Mandibular		Hyperplasia	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Moderate
	[Adenoma TGLs = 1,3-14+16]		
	[Hyperplasia TGLs = 4,5-17+18]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Marked
	[Hyperplasia TGLs = 6-8]		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 249

TRT#: 9

SEX: Male

DAY ON TEST: 707

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102050

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

AUTO PRECLUDES DIAG.

- | | | |
|--------------------------|---------|----------|
| * Intestine Small, Ileum | * Liver | * Spleen |
|--------------------------|---------|----------|

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|---------------------|
| * Heart | | Cardiomyopathy | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Skin | | Keratoacanthoma | |
| | [Keratoacanthoma TGLs = 1-14] | | |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Heart Cardiomyopathy

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 250

TRT#: 9

SEX: Male

DAY ON TEST: 735

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102051

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

OBSERVATIONS

- * Adrenal Medulla
- * Kidney
- * Liver
- * Lung
 - [Infiltration Cellular TGLs = 3-3+4]
- * Pancreas
 - [Hyperplasia TGLs = 2-15]
- * Skin
 - [Lipoma TGLs = 1-14]
- * Spleen
- * Thymus
- Tongue
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Hyperplasia
- Lipoma
- Hematopoietic Cell Proliferation
- Atrophy
- Hemorrhage
- Inflammation
- Ulcer
- Minimal
- Mild
- Histiocyte, Mild
- Mild
- Mild
- Minimal
- Chronic, Mild
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 251

TRT#: 4

SEX: Female

DAY ON TEST: 459

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102067

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Clitoral Gland
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Nose
- * Skin
- * Urinary Bladder
- Blood Vessel
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Parathyroid Gland
- * Stomach, Glandular
- * Uterus
- * Bone
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pituitary Gland
- * Thyroid Gland
- * Bone Marrow
- * Harderian Gland
- * Intestine Small, Duodenum
- * Mammary Gland
- * Salivary Glands
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
- * Brain
- [Hemorrhage TGLs = 4-9]
- * Heart
- Myocardium
- * Kidney
- * Liver
- * Lung
- [Leukemia Mononuclear TGLs = 3-3+4]
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Ovary
- * Pancreas
- [Thrombosis TGLs = 2-14]
- * Spleen
- [Leukemia Mononuclear TGLs = 1-13]
- * Stomach, Forestomach
- * Thymus
- Leukemia Mononuclear
- Hemorrhage
- Leukemia Mononuclear
- Leukemia Mononuclear
- Schwannoma Malignant
- Leukemia Mononuclear
- Mineralization
- Nephropathy
- Leukemia Mononuclear
- Leukemia Mononuclear
- Leukemia Mononuclear
- Leukemia Mononuclear
- Leukemia Mononuclear
- Leukemia Mononuclear
- Atrophy
- Leukemia Mononuclear
- Thrombosis
- Leukemia Mononuclear
- Hyperplasia
- Atrophy
- Mild
- Minimal
- Minimal
- Mild
- Marked
- Mild
- Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 251

TRT#: 4

SEX: Female

DAY ON TEST: 459

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102067

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH

- Brain Hemorrhage

CONTRIBUTORY CAUSE OF DEATH

- Spleen Leukemia Mononuclear

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 252

TRT#: 4

SEX: Female

DAY ON TEST: 601

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102068

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--------------------------------|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Adenocarcinoma | |
| | | Fibroadenoma | |
| | [Adenocarcinoma TGLs = 2-14] | | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 253

TRT#: 4

SEX: Female

DAY ON TEST: 513

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102069

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Marked |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| | | Ulcer | Moderate |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01
Test Type: CHRONIC
Route: DOSED FEED
Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic
CAS Number: 5263-02-5

Date Report Requested: 05/25/2016
Time Report Requested: 10:06:20
First Dose M/F: 09/03/09 / 09/04/09
Lab: BAT

ANIMAL ID: 254

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102070

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* 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, Mesenteric	* Mammary Gland	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Bone Marrow		Hyperplasia	Mild
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Minimal
* Liver		Fatty Change	Minimal
		Hematopoietic Cell Proliferation	Mild
* Lung		Infiltration Cellular	Histiocyte, Mild
	[Infiltration Cellular TGLs = 3-3+4]		
* Lymph Node, Mandibular		Hyperplasia	Mild
		Infiltration Cellular	Plasma Cell, Moderate
* Nose		Inflammation	Mild
* Ovary		Atrophy	Mild
	[Cyst TGLs = 2-13]	Cyst	
* Spleen		Hematopoietic Cell Proliferation	Mild
	Lymph Follic	Hyperplasia	Mild
		Pigmentation	Hemosiderin, Minimal
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Hyperplasia	Mild
Tooth		Malformation	Mild
* Uterus	Endometrium	Hyperplasia	Cystic, Marked
		Polyp Stromal	
	[Hyperplasia TGLs = 1-11]		

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 255

TRT#: 4

SEX: Female

DAY ON TEST: 727

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102071

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Nose | | Inflammation | Minimal |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 256

TRT#: 4

SEX: Female

DAY ON TEST: 727

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102072

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 257

TRT#: 4

SEX: Female

DAY ON TEST: 599

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102073

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|------------------------|--------------------------|---------------------------|----------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Rectum | * Islets, Pancreatic |
| * Kidney | * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|----------------------------|--------------------------|-----------------------------|
| * Bone Marrow | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Pancreas | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Liver | Hepatocyte | Necrosis | Minimal |
| * Lung | [Infiltration Cellular TGLs = 2-3+4] | Infiltration Cellular | Histiocyte, Moderate |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Mammary Gland | [Fibroadenoma TGLs = 1-13] | Fibroadenoma | |
| * Ovary | | Atrophy | Moderate |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 258

TRT#: 4

SEX: Female

DAY ON TEST: 648

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102074

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | Epithel Cell | Hyperplasia | Marked |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 259

TRT#: 4

SEX: Female

DAY ON TEST: 727

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102075

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-----------------------|
| * Eye | | Cataract | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Eosinophilic Focus | |
| | Hepatocyte | Inclusion Body Intracytoplasmic | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 260

TRT#: 4

SEX: Female

DAY ON TEST: 727

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102076

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 2-14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Adenoma | |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 261

TRT#: 4

SEX: Female

DAY ON TEST: 518

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102077

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | |
|------------------------------|----------------------------------|-------------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Hematopoietic Cell Proliferation | Mild |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Marked |
| | Inflammation | Mild |
| * Uterus | Inflammation | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 262

TRT#: 4

SEX: Female

DAY ON TEST: 727

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102078

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-----------------------------------|---------------|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Moderate |
| * Mammary Gland | | Fibroadenoma | Multiple |
| [Fibroadenoma TGLs = 1,2-13+14] | | | |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 4-16] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Adenoma | |
| [Adenoma TGLs = 3-15] | | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 263

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102079

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 264

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102080

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|---------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Lymph Node, Mesenteric | | Atrophy | Mild |
| * Mammary Gland | | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 265

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102081

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Blood Vessel
- * Bone
- * 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
- * Lymph Node, Mesenteric
- * Nose
- * Pancreas
- * Salivary Glands
- * Skin
- * Stomach, Forestomach
- * Stomach, Glandular
- * Thymus
- * Trachea
- * Urinary Bladder
- * Uterus

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> * Bone Marrow * Liver * Lung <li style="padding-left: 20px;">[Infiltration Cellular TGLs = 2-3+4] * Lymph Node, Mandibular * Mammary Gland <li style="padding-left: 20px;">[Fibroadenoma TGLs = 1-13] * Ovary * Pituitary Gland * Spleen * Thyroid Gland | <ul style="list-style-type: none"> Hyperplasia Fatty Change Infiltration Cellular Atrophy Fibroadenoma Atrophy Hyperplasia Hematopoietic Cell Proliferation Pigmentation Hyperplasia Pars Distalis C Cell | <ul style="list-style-type: none"> Mild Minimal Histiocyte, Moderate Mild Moderate Marked Minimal Hemosiderin, Mild Moderate |
|--|---|---|

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 266

TRT#: 4

SEX: Female

DAY ON TEST: 700

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102082

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-----------------|-----------------------------------|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 267

TRT#: 4

SEX: Female

DAY ON TEST: 519

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102083

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Cyst | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Uterus | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 268

TRT#: 4

SEX: Female

DAY ON TEST: 690

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102084

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 269

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102085

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Parathyroid Gland
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Salivary Glands
- * Thymus
- * Uterus
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Nose
- * Skin
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Pancreas
- * Stomach, Forestomach
- * Trachea

OBSERVATIONS

- Blood Vessel
Note: Rectum affected. Inflammation Minimal
- * Kidney [Nephropathy TGLs = 2-5] Nephropathy Mild
- * Liver Clear Cell Focus
- * Lung [Infiltration Cellular TGLs = 3-3+4] Infiltration Cellular Histiocyte, Mild
- * Lymph Node, Mandibular Hyperplasia Moderate
- * Mammary Gland [Adenocarcinoma TGLs = 1-13] Adenocarcinoma
- * Ovary Atrophy Marked
- * Pituitary Gland [Adenoma TGLs = 4-14] Interstit Cell Hyperplasia Mild
Pars Distalis Adenoma
- * Spleen Hematopoietic Cell Proliferation Mild
Pigmentation Hemosiderin, Moderate

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 270

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102086

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Clitoral Gland
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Pancreas
- * Stomach, Glandular
- * Uterus
- Blood Vessel
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Pituitary Gland
- * Thyroid Gland
- * Bone
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Salivary Glands
- * Trachea
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Nose
- * Skin
- * Urinary Bladder

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Adrenal Cortex
- * Bone Marrow
- * Heart
- * Kidney
- * Liver
- [Lymphoma Malignant TGLs = 3-6+14]
- * Lung
- [Infiltration Cellular TGLs = 4-3+4]
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Mammary Gland
- [Fibroadenoma TGLs = 1-13]
- * Ovary
- * Spleen
- [Lymphoma Malignant TGLs = 2-5]
- * Stomach, Forestomach
- * Thymus
- Lymphoma Malignant
- Lymphoma Malignant
- Cardiomyopathy
- Lymphoma Malignant
- Nephropathy
- Lymphoma Malignant
- Infiltration Cellular
- Lymphoma Malignant
- Lymphoma Malignant
- Fibroadenoma
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant

Mild

Mild

Histiocyte, Minimal

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 271

TRT#: 4

SEX: Female

DAY ON TEST: 323

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102087

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|------------------------------|--------------|----------------------------------|----------------------|
| * Lymph Node, Mesenteric | | Hyperplasia | Moderate |
| * Mammary Gland | | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 272

TRT#: 4

SEX: Female

DAY ON TEST: 350

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102088

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Blood Vessel
- * Bone
- * 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
- * Liver
- * Lymph Node, Mandibular
- * Mammary Gland
- * Nose
- * Pituitary Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Stomach, Glandular
- * Thymus
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

MISSING

- * Lymph Node, Mesenteric
- * Parathyroid Gland

OBSERVATIONS

- * Bone Marrow
 - * Kidney
 - * Lung
 - * Ovary
 - * Pancreas
 - * Skin
 - * Spleen
 - * Uterus
- [Schwannoma Malignant TGLs = 1-13]
- Hyperplasia
 - Nephropathy
 - Infiltration Cellular
 - Hyperplasia
 - Atrophy
 - Schwannoma Malignant
 - Hematopoietic Cell Proliferation
 - Hyperplasia
 - Pigmentation
 - Metaplasia
- Minimal
 - Minimal
 - Histiocyte, Mild
 - Mild
 - Minimal
 - Moderate
 - Mild
 - Hemosiderin, Minimal
 - Squamous, Minimal

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 273

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102089

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|---------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Mixed Cell Focus | |
| | [Mixed Cell Focus TGLs = 3-15] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Cyst | |
| | [Cyst TGLs = 4-16] | | |
| * Parathyroid Gland | | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 274

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102090

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* 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	* Liver	* Lung
* Lymph Node, Mesenteric	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Kidney	Nephropathy	Minimal
* Lymph Node, Mandibular	Hyperplasia	Moderate
* Mammary Gland	Fibroadenoma	
	Hyperplasia	Moderate
	[Fibroadenoma TGLs = 2-14]	
	[Hyperplasia TGLs = 3-15]	
* Skin	Inflammation	Marked
Note: Abscess.		
	[Inflammation TGLs = 1-13]	
* Spleen	Pigmentation	Hemosiderin, Mild
* Thymus	Atrophy	Mild
* Uterus	Metaplasia	Squamous, Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 275

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102091

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Cyst | Moderate |
| | | Metaplasia | Squamous, Minimal |
| | [Cyst TGLs = 1-13] | | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 276

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102092

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Ovary |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|------------|--|-----------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 277

TRT#: 4

SEX: Female

DAY ON TEST: 649

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102093

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|-----------------------|-----------------------|
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | | Hyperplasia | Mild |
| * Ovary | | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Angiectasis | Mild |
| | Pars Distalis | Hyperplasia | Mild |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Moderate |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Angiectasis

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 278

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102094

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Kidney | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Adrenal Cortex | | Degeneration | Cystic, Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 3-15] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 5-16] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 279

TRT#: 4

SEX: Female

DAY ON TEST: 729

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102095

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Liver | | Angiectasis | Minimal |
| | [Angiectasis TGLs = 3-15] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | Inflammation | Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Atrophy | Minimal |
| | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 5-16] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 280

TRT#: 4

SEX: Female

DAY ON TEST: 729

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102096

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| | | Fibroadenoma | |
| * Mammary Gland | | | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 281

TRT#: 4

SEX: Female

DAY ON TEST: 729

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102097

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|------------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Kidney | | Infarct | Chronic, Minimal |
| * Liver | Bile Duct | Hyperplasia | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Moderate |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 282

TRT#: 4

SEX: Female

DAY ON TEST: 714

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102098

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|------------------------|-----------------------------------|--------------|----------|
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-15] | | |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 283

TRT#: 4

SEX: Female

DAY ON TEST: 633

DOSE: 3.5ppm SevZnDef

DISP: Natural Death

HISTO: 1102099

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Blood Vessel
- * Bone Marrow
- * Brain
- * Clitoral Gland
- * Bone
- * Harderian Gland
- * Heart
- * Intestine Large, Cecum
- * Eye
- * Intestine Large, Rectum
- * Intestine Small, Duodenum
- * Intestine Small, Ileum
- * Intestine Large, Colon
- * Islets, Pancreatic
- * Kidney
- * Liver
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Nose
- * Ovary
- * Lung
- * Stomach, Forestomach
- * Stomach, Glandular
- * Trachea
- * Skin
- * Uterus
- * Urinary Bladder

MISSING

- * Esophagus
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Thyroid Gland
- * Salivary Glands

AUTO PRECLUDES DIAG.

- * Pancreas

OBSERVATIONS

- * Mammary Gland [Fibroadenoma TGLs = 1-13] Fibroadenoma
- * Pituitary Gland [Adenoma TGLs = 2-14] Pars Distalis Adenoma
- * Spleen Lymph Follic Atrophy Minimal
Pigmentation Hemosiderin, Moderate
- * Thymus Atrophy Marked

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

CONTRIBUTORY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 284

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102100

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|-------------------|
| * Adrenal Cortex | | Degeneration | Cystic, Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 285

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102101

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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, Mesenteric | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Developmental Malformation | |
| | [Developmental Malformation TGLs = 3-6] | | |
| * Lung | | Cystic Keratinizing Epithelioma | |
| | [Cystic Keratinizing Epithelioma TGLs = 2-4] | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pancreas | Duct | Hyperplasia | Cystic, Moderate |
| | Note: One segment of the organ only consists of islets and cystic ducts. | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Uterus | | Metaplasia | Squamous, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 286

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102102

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------------|-----------------------|-----------------------|
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Adenocarcinoma | |
| | | Fibroadenoma | Multiple |
| | [Adenocarcinoma TGLs = 3-15] | | |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 287

TRT#: 4

SEX: Female

DAY ON TEST: 728

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102103

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 288

TRT#: 4

SEX: Female

DAY ON TEST: 728

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102104

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 2-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| | | Metaplasia | Squamous, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 289

TRT#: 4

SEX: Female

DAY ON TEST: 728

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102105

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 2-14] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Marked |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 290

TRT#: 4

SEX: Female

DAY ON TEST: 728

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102106

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|------------------------|--|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Marked |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 291

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102107

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* 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	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Mild
		Hyperplasia	Mild
* Kidney		Nephropathy	Minimal
* Liver		Fatty Change	Minimal
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[Infiltration Cellular TGLs = 1-3+4]		
* Ovary		Atrophy	Moderate
		Cyst	
* Pituitary Gland	Pars Distalis	Adenoma	
* Spleen		Hematopoietic Cell Proliferation	Mild
		Pigmentation	Hemosiderin, Mild
* Stomach, Forestomach	Epithelium	Hyperplasia	Minimal
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Hyperplasia	Minimal
* Uterus	Endometrium	Hyperplasia	Cystic, Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 292

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102108

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Nose
- * Pancreas
- * Skin
- * Stomach, Forestomach
- * Trachea
- * Urinary Bladder
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Glandular
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Salivary Glands
- * Thyroid Gland

OBSERVATIONS

- * Kidney
- * Liver
- * Lung
- [Infiltration Cellular TGLs = 3-3+4]
- * Lymph Node, Mandibular
- * Ovary
- [Cyst TGLs = 1-13]
- * Pituitary Gland
- [Adenoma TGLs = 4-15]
- * Spleen
- * Thymus
- * Uterus
- [Leiomyoma TGLs = 2-14]
- Bile Duct
- Pars Distalis
- Endometrium
- Nephropathy
- Hyperplasia
- Infiltration Cellular
- Hyperplasia
- Atrophy
- Cyst
- Adenoma
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Hyperplasia
- Leiomyoma
- Minimal
- Mild
- Histiocyte, Moderate
- Mild
- Marked
- Minimal
- Hemosiderin, Moderate
- Mild
- Cystic, Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 293

TRT#: 4

SEX: Female

DAY ON TEST: 659

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102109

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Cyst | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 294

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102110

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | |
|-----------------------------------|-----------------------|----------------------|
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | Adenoma | |
| | Fibroadenoma | Multiple |
| [Adenoma TGLs = 3-15] | | |
| [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Spleen | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Marked |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 295

TRT#: 4

SEX: Female

DAY ON TEST: 701

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102111

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Angiectasis | Mild |
| | [Angiectasis TGLs = 2-14] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 4-15] | | |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

CONTRIBUTORY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 297

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102113

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--------------------------------------|----------------------------------|---------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | Bile Duct | Cyst | Marked |
| | [Cyst TGLs = 1-13] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Polyp Stromal | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 298

TRT#: 4

SEX: Female

DAY ON TEST: 726

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102114

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------------------|-------------|----------------------------------|-------------------|
| * Adrenal Cortex | | Degeneration | Cystic, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| [Fibroadenoma TGLs = 1,2-13+14] | | | |
| * Ovary | | Atrophy | Moderate |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| [Schwannoma Malignant TGLs = 3-15] | | Schwannoma Malignant | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 299

TRT#: 4

SEX: Female

DAY ON TEST: 725

DOSE: 3.5ppm SevZnDef

DISP: Terminal Sacrifice

HISTO: 1102115

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular |
| * Nose | * Ovary | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 300

TRT#: 4

SEX: Female

DAY ON TEST: 659

DOSE: 3.5ppm SevZnDef

DISP: Moribund Sacrifice

HISTO: 1102116

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Pituitary Gland
- * Stomach, Glandular
- * Uterus
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Ovary
- * Salivary Glands
- * Thyroid Gland
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Pancreas
- * Skin
- * Trachea
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Urinary Bladder

OBSERVATIONS

- * Bone Marrow
 - * Liver
 - [Vacuolization Cytoplasmic TGLs = 2-14]
 - * Lung
 - [Infiltration Cellular TGLs = 4-3+4]
 - * Mammary Gland
 - [Adenoma TGLs = 3-15]
 - [Fibroadenoma TGLs = 1-13]
 - * Spleen
 - Lymph Follic
 - * Thymus
- Hyperplasia
Vacuolization Cytoplasmic
Infiltration Cellular
Adenoma
Fibroadenoma
Hyperplasia
Pigmentation
Atrophy
- Minimal
Mild
Histiocyte, Moderate
Mild
Hemosiderin, Mild
Minimal

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 301

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102117

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Pancreas
- * Salivary Glands
- * Stomach, Glandular
- * Thymus
- * Urinary Bladder
- * Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Mammary Gland
- * Skin
- * Thyroid Gland
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Nose
- * Stomach, Forestomach
- * Trachea

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Lung [Infiltration Cellular TGLs = 1-3+4] Infiltration Cellular Histiocyte, Mild
- * Ovary Atrophy Marked
- * Pituitary Gland Pars Distalis Hyperplasia Moderate
- * Spleen Pigmentation Hemosiderin, Minimal
- * Uterus Endometrium Hyperplasia Cystic, Mild
- Metaplasia Squamous, Mild

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 302

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102118

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|---|----------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 3-3+4+15] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 303

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102119

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 |
| * Kidney | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|------------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Atrophy | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Fatty Change | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | | Pigmentation | Hemosiderin, Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 304

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102120

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2,3-13+14+15] | | |
| * Nose | Respirat Epith | Hyperplasia | Minimal |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 305

TRT#: 6

SEX: Female

DAY ON TEST: 644

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1102121

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Nose |
| * Ovary | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | | |
|--------------------------|---------------------|----------|
| * Lymph Node, Mandibular | * Parathyroid Gland | * Thymus |
|--------------------------|---------------------|----------|

AUTO PRECLUDES DIAG.

- * Pancreas

OBSERVATIONS

- | | | | |
|------------------------|--|-----------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | Hepatocyte | Necrosis | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 306

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102122

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Liver | | Cholangioma | |
| | [Cholangioma TGLs = 2-14] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Hyperplasia | Minimal |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Uterus | | Metaplasia | Squamous, Marked |
| | Note: Lumen is filled with keratin debris. | | |
| | [Metaplasia TGLs = 1-13] | | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 307

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102123

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|---|-----------------------|-----------------------|
| * Adrenal Medulla | Hyperplasia | Minimal |
| * Liver | Eosinophilic Focus | |
| [Eosinophilic Focus TGLs = 4,5-15+16] | | |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | Fibroadenoma | Multiple |
| [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | Atrophy | Mild |
| * Spleen | Pigmentation | Hemosiderin, Moderate |
| * Thymus | Atrophy | Minimal |
| * Uterus | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 308

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102124

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Hyperplasia | Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 309

TRT#: 6

SEX: Female

DAY ON TEST: 729

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102125

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Mild |
| * Pancreas | Acinus | Basophilic Focus | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | | Polyp, Inflammatory | Marked |
| | [Polyp, Inflammatory TGLs = 2-13] | | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 310

TRT#: 6

SEX: Female

DAY ON TEST: 729

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102126

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|------------|--|----------------------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 311

TRT#: 6

SEX: Female

DAY ON TEST: 729

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102127

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * Bone | * 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 | * Liver | * 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 | * Uterus | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|----------------------|
| * Adrenal Cortex | Hyperplasia | Mild |
| * Bone Marrow | Hyperplasia | Mild |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Moderate |
| | Pigmentation | Hemosiderin, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 312

TRT#: 6

SEX: Female

DAY ON TEST: 729

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102128

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 313

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102129

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Nose
- * Pancreas
- * Skin
- * Stomach, Forestomach
- * Urinary Bladder
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Parathyroid Gland
- * Stomach, Glandular
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Salivary Glands
- * Trachea

OBSERVATIONS

- * Liver Fatty Change Minimal
- * Lung Infiltration Cellular Histiocyte, Moderate
[Infiltration Cellular TGLs = 5-3+4]
- * Lymph Node, Mandibular Infiltration Cellular Plasma Cell, Mild
- * Mammary Gland Fibroadenoma
[Fibroadenoma TGLs = 1-13]
- * Ovary Bilateral Cyst
- * Pituitary Gland Pars Distalis Hyperplasia Moderate
- * Spleen Hematopoietic Cell Proliferation Minimal
Pigmentation Hemosiderin, Minimal
- * Thymus Atrophy Mild
- * Thyroid Gland C Cell Hyperplasia Moderate
- * Uterus Metaplasia Squamous, Marked
Note: Lumen is filled with keratin debris.
[Metaplasia TGLs = 4-11]

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 314

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102130

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|-----------------------|----------------------|
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | Adenocarcinoma | |
| | Fibroadenoma | |
| [Adenocarcinoma TGLs = 2-14] | | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Pigmentation | Hemosiderin, Mild |
| * Thymus | Atrophy | Marked |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 315

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102131

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Glandular | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|------------------------|--|-----------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Moderate |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Marked |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 316

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102132

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Mild |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 317

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102133

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 3-15] | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 318

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102134

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|--------------|----------------------|
| * Intestine Small, Duodenum
[Leiomyoma TGLs = 2-14] | Leiomyoma | |
| * Kidney | Nephropathy | Minimal |
| * Liver | Fatty Change | Minimal |
| * Mammary Gland
[Fibroadenoma TGLs = 1-13] | Fibroadenoma | |
| * Spleen | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 319

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102135

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 5-15] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Marked |
| | [Metaplasia TGLs = 3-11] | | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 320

TRT#: 6

SEX: Female

DAY ON TEST: 635

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102136

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 321

TRT#: 6

SEX: Female

DAY ON TEST: 644

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102137

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| | | Fibroadenoma | |
| * Mammary Gland | | | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |
| * Uterus | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 322

TRT#: 6

SEX: Female

DAY ON TEST: 697

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102138

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|------------------------|--|-----------------------|----------------------|
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 4-14] | | |
| * Ovary | | Cyst | |
| | [Cyst TGLs = 3-13] | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-8] | | |
| * Spleen | | Pigmentation | Hemosiderin, Marked |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 323

TRT#: 6

SEX: Female

DAY ON TEST: 676

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102139

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|---------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Mild |
| * Skin | Subcut Tiss | Fibroma | |
| | [Fibroma TGLs = 3-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Adenoma | |
| | [Adenoma TGLs = 4-16] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 324

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102140

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|----------------------|
| * Heart | Endocardium | Hyperplasia | Mild |
| * Lung | [Infiltration Cellular TGLs = 2-3+4] | Infiltration Cellular | Histiocyte, Moderate |
| * Mammary Gland | [Fibroadenoma TGLs = 1-13] | Fibroadenoma | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 3-8] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 325

TRT#: 6

SEX: Female

DAY ON TEST: 582

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102141

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|---|----------------------------------|-----------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | | Squamous Cell Carcinoma | Metastatic (Uterus) |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Uterus | | Squamous Cell Carcinoma | |
| | [Squamous Cell Carcinoma TGLs = 2-14] | | |

PRIMARY CAUSE OF DEATH - Uterus Squamous Cell Carcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 326

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102142

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-----------------|--|----------------------------------|----------------------|
| * Heart | Endocardium | Schwannoma Malignant | |
| * Lung | [Infiltration Cellular TGLs = 5-3+4] | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | [Fibroadenoma TGLs = 1,2,4-13+14+15] | Fibroadenoma | Multiple |
| * Ovary | Granulosa Cell | Cyst | |
| | [Cyst TGLs = 3-11] | Hyperplasia | Marked |
| * Spleen | Lymph Follic | Hematopoietic Cell Proliferation | Mild |
| | | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 327

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102143

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Mixed Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 328

TRT#: 6

SEX: Female

DAY ON TEST: 615

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1102144

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |

AUTO PRECLUDES DIAG.

- * Uterus

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Adrenal Cortex | | Degeneration | Cystic, Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Lymph Node, Mesenteric | | Atrophy | Mild |
| * Mammary Gland | | Cyst | Marked |
| | [Cyst TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 329

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102145

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Lymph Node, Mandibular
- * Lymph Node, Mesenteric
- * Pancreas
- * Parathyroid Gland
- * Stomach, Forestomach
- * Stomach, Glandular
- * Urinary Bladder
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Mammary Gland
- * Salivary Glands
- * Thyroid Gland
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Nose
- * Skin
- * Trachea

OBSERVATIONS

- * Lung
 - [Infiltration Cellular TGLs = 1-3+4]
 - * Ovary
 - [Cyst TGLs = 2,3-13+14]
 - * Pituitary Gland
 - [Hyperplasia TGLs = 5-8]
 - * Spleen
 - * Thymus
 - * Uterus
 - [Adenocarcinoma TGLs = 4-15]
- Adenocarcinoma
Infiltration Cellular
- Cyst
- Hyperplasia
- Hematopoietic Cell Proliferation
Pigmentation
Atrophy
- Adenocarcinoma
Metaplasia
- Metastatic (Uterus)
Histiocyte, Mild
- Marked
- Mild
Hemosiderin, Mild
Mild
- Squamous, Moderate

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 330

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102146

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 4-8] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 331

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102147

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|-------------------|
| * Kidney | Nephropathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | Atrophy | Moderate |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |
| * Uterus | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 332

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102148

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|-----------------------|----------------------|
| * Lung | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | Atrophy | Moderate |
| * Spleen | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 333

TRT#: 6

SEX: Female

DAY ON TEST: 676

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102149

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Angiectasis | Mild |
| | | Eosinophilic Focus | |
| | | Fatty Change | Minimal |
| | [Angiectasis TGLs = 4-15] | | |
| | [Eosinophilic Focus TGLs = 6-16] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-8] | | |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 334

TRT#: 6

SEX: Female

DAY ON TEST: 725

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102150

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|----------------------|--|----------------------------------|------------------|
| * Adrenal Cortex | | Thrombosis | Mild |
| * Islets, Pancreatic | | Hyperplasia | Minimal |
| * Liver | | Clear Cell Focus | |
| | [Clear Cell Focus TGLs = 3-14] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 335

TRT#: 6

SEX: Female

DAY ON TEST: 725

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102151

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|----------------------|
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Basophilic Focus | |
| | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 2-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 336

TRT#: 6

SEX: Female

DAY ON TEST: 725

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102152

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Liver | | Angiectasis | Mild |
| | [Angiectasis TGLs = 4,5-16+17] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2,3-13+14+15] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 337

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102153

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|---------------|------------------|-----------------------|
| * Liver | | Clear Cell Focus | |
| * Ovary | | Atrophy | Mild |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 338

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102154

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Nose
- * Parathyroid Gland
- * Stomach, Forestomach
- * Stomach, Glandular
- * Urinary Bladder
- * Uterus
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mandibular
- * Salivary Glands
- * Thyroid Gland
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Skin
- * Trachea

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Clear Cell Focus
- [Clear Cell Focus TGLs = 3-15]
- * Lung Infiltration Cellular Histiocyte, Mild
- [Infiltration Cellular TGLs = 4-3+4]
- * Mammary Gland Fibroadenoma Hyperplasia Moderate
- [Fibroadenoma TGLs = 7-17]
- [Hyperplasia TGLs = 5-16]
- * Ovary Cyst
- [Cyst TGLs = 1-13]
- * Pancreas Acinus Hyperplasia Minimal
- [Hyperplasia TGLs = 2-14]
- * Pituitary Gland Pars Distalis Hyperplasia Marked
- [Hyperplasia TGLs = 6-8]
- * Spleen Pigmentation Hemosiderin, Mild
- * Thymus Atrophy Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 339

TRT#: 6

SEX: Female

DAY ON TEST: 726

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102155

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Nose | * Ovary |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|---------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pancreas | Acinus | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 340

TRT#: 6

SEX: Female

DAY ON TEST: 676

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102156

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | Hepatocyte | Necrosis | Minimal |
| | [Necrosis TGLs = 3-6] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | | Pigmentation | Hemosiderin, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 341

TRT#: 6

SEX: Female

DAY ON TEST: 447

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102157

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Liver | | Fatty Change | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 342

TRT#: 6

SEX: Female

DAY ON TEST: 483

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1102158

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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, Mesenteric | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Moderate |
| * Lung | | Adenocarcinoma | Metastatic (Mammary Gland) |
| | | Infiltration Cellular | Histiocyte, Minimal |
| | [Adenocarcinoma TGLs = 2,3,4-14+15+16] | | |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Adenocarcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 343

TRT#: 6

SEX: Female

DAY ON TEST: 727

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102159

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|--|----------------------|
| * Liver | | Clear Cell Focus
Eosinophilic Focus | |
| | [Clear Cell Focus TGLs = 2-14] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 344

TRT#: 6

SEX: Female

DAY ON TEST: 663

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1102160

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|-------------------|-------------------------|---------------|-------------------|
| * Ovary | | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 1-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Uterus | | Polyp Stromal | |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 345

TRT#: 6

SEX: Female

DAY ON TEST: 690

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102161

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Brain
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Nose
- * Pituitary Gland
- * Stomach, Glandular
- * Uterus
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Ovary
- * Salivary Glands
- * Thyroid Gland
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pancreas
- * Skin
- * Trachea
- * Bone Marrow
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Urinary Bladder

OBSERVATIONS

- * Adrenal Cortex
- * Clitoral Gland
- [Cyst TGLs = 2-14]
- * Liver
- * Mammary Gland
- [Fibroadenoma TGLs = 1-13]
- * Spleen
- * Thymus
- Hyperplasia
- Cyst
- Fatty Change
- Fibroadenoma
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Mild
- Marked
- Minimal
- Mild
- Hemosiderin, Minimal
- Moderate

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 346

TRT#: 6

SEX: Female

DAY ON TEST: 725

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102162

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Kidney | * Lung | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--------|----------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 347

TRT#: 6

SEX: Female

DAY ON TEST: 700

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102163

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-8] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Adenocarcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 348

TRT#: 6

SEX: Female

DAY ON TEST: 572

DOSE: 7ppm ZnDef

DISP: Natural Death

HISTO: 1102164

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|---------------------------|---------------|--------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Minimal |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Carcinoma | |
| [Carcinoma TGLs = 1-13] | | | |
| * Spleen | Lymph Follic | Atrophy | Moderate |
| | | Pigmentation | Hemosiderin, Marked |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Carcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 349

TRT#: 6

SEX: Female

DAY ON TEST: 463

DOSE: 7ppm ZnDef

DISP: Moribund Sacrifice

HISTO: 1102165

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 350

TRT#: 6

SEX: Female

DAY ON TEST: 728

DOSE: 7ppm ZnDef

DISP: Terminal Sacrifice

HISTO: 1102166

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular |
| * Mammary Gland | * Nose | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|---------------|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Angiectasis | Mild |
| | | Mixed Cell Focus | |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Ovary | | Cyst | |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Marked |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 351

TRT#: 2

SEX: Female

DAY ON TEST: 677

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102167

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Skin
- * Trachea
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Pancreas
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Stomach, Glandular
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Salivary Glands
- * Thymus

OBSERVATIONS

- * Adrenal Cortex
 - * Kidney
 - * Lung
 - [Infiltration Cellular TGLs = 3-3+4]
 - * Mammary Gland
 - [Hyperplasia TGLs = 1-13]
 - * Ovary
 - * Pituitary Gland
 - [Adenoma TGLs = 4-15]
 - * Spleen
 - * Thyroid Gland
 - * Uterus
 - [Polyp Stromal TGLs = 2-14]
- Hyperplasia
 Nephropathy
 Infiltration Cellular
 Hyperplasia
 Atrophy
 Adenoma
 Pigmentation
 Hyperplasia
 Hyperplasia
 Polyp Stromal
- Minimal
 Minimal
 Histiocyte, Mild
 Marked
 Mild
 Hemosiderin, Moderate
 Mild
 Cystic, Mild

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 352

TRT#: 2

SEX: Female

DAY ON TEST: 676

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102168

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Kidney | * Lymph Node, Mesenteric | * Nose | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Mild |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 353

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102169

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pancreas | Acinus | Atrophy | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 354

TRT#: 2

SEX: Female

DAY ON TEST: 540

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102170

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | |
|---|----------------------------------|-----------------------|
| * Bone Marrow | Hyperplasia | Mild |
| * Kidney | Cyst | Marked |
| [Cyst TGLs = 3-5] | | |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 4-3+4] | | |
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 1-13] | | |
| * Ovary | Atrophy | Moderate |
| * Spleen | Hematopoietic Cell Proliferation | Marked |
| [Hematopoietic Cell Proliferation TGLs = 2-5] | | |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Adenocarcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 355

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102171

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Blood Vessel | * Bone | * 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 |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Bone Marrow | | Hyperplasia | Mild |
| * Liver | | Cholangioma | |
| | [Cholangioma TGLs = 5-17] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 6-3+4] | | |
| * Mammary Gland | | Adenoma | |
| | | Fibroadenoma | Multiple |
| | [Adenoma TGLs = 4-16] | | |
| | [Fibroadenoma TGLs = 1,2,3-13+14+15] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 7-18] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 356

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102172

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|-------------------|---------------|--------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Adenoma | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 357

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102173

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Blood Vessel | * Bone | * 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 |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | |
|--|-----------------------|----------------------|
| * Adrenal Cortex | Degeneration | Cystic, Mild |
| * Adrenal Medulla | Hyperplasia | Mild |
| * Bone Marrow | Hyperplasia | Mild |
| * Kidney | Nephropathy | Minimal |
| * Liver | Fatty Change | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | Fibroadenoma | Multiple |
| [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | Atrophy | Minimal |
| * Spleen | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 358

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102174

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 |
| * Kidney | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Heart | Endocardium | Fibrosis | Minimal |
| * Liver | | Hematopoietic Cell Proliferation | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | | Angiectasis | Mild |
| | [Angiectasis TGLs = 1-13] | | |
| * Spleen | Lymph Follic | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 359

TRT#: 2

SEX: Female

DAY ON TEST: 656

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1102175

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|-----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Mild |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 360

TRT#: 2

SEX: Female

DAY ON TEST: 253

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1102176

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | |
|--------------------------|-----------------------|-------------------|
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Mild |
| * Spleen | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 361

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102177

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|-----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Marked |
| | [Metaplasia TGLs = 3-14] | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 362

TRT#: 2

SEX: Female

DAY ON TEST: 690

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1102178

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 |
| * Lung | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------------|----------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Fatty Change | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-15] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 363

TRT#: 2

SEX: Female

DAY ON TEST: 469

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102179

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | Blood Vessel | * Bone | * 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 |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Glandular | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|------------------------|------------|-----------------------|-----------------------|
| * Adrenal Cortex | | Necrosis | Minimal |
| * Bone Marrow | | Atrophy | Mild |
| * Brain | Cerebrum | Gliosis | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH

- Brain Cerebrum Gliosis

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 364

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102180

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* 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
* Liver	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Hydronephrosis	Moderate
		Nephropathy	Minimal
	[Hydronephrosis TGLs = 2-14]		
* Ovary		Atrophy	Moderate
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
	[Hyperplasia TGLs = 3-15]		
* Spleen		Hematopoietic Cell Proliferation	Mild
* Thymus		Atrophy	Mild
* Uterus		Adenocarcinoma	
	Endometrium	Hyperplasia	Cystic, Mild
		Metaplasia	Squamous, Minimal
	[Adenocarcinoma TGLs = 1-13]		

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 365

TRT#: 2

SEX: Female

DAY ON TEST: 435

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102181

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 366

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102182

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 367

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102183

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* 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	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	* Uterus

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Kidney		Nephropathy	Minimal
* Lung	[Infiltration Cellular TGLs = 2-3+4]	Infiltration Cellular	Histiocyte, Mild
* Ovary		Atrophy	Marked
		Cyst	
	[Cyst TGLs = 1-13]	Hyperplasia	Mild
	Granulosa Cell		
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Moderate
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Hyperplasia	Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 368

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102184

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|-----------------------|
| * Kidney | Nephropathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Minimal |
| [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | Atrophy | Mild |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Moderate |
| * Thymus | Atrophy | Mild |
| * Uterus | Metaplasia | Squamous, Minimal |
| | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 369

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102185

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Cyst | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 370

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102186

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 2-14] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 371

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102187

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* 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	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Salivary Glands	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

MISSING

* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Kidney		Nephropathy	Minimal
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[Infiltration Cellular TGLs = 1-3+4]		
* Ovary		Atrophy	Mild
		Cyst	
* Pancreas	Acinus	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Pigmentation	Hemosiderin, Mild
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Hyperplasia	Minimal
* Uterus	Endometrium	Hyperplasia	Cystic, Mild
		Metaplasia	Squamous, Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 372

TRT#: 2

SEX: Female

DAY ON TEST: 568

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102188

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 |
| * Liver | * Lymph Node, Mesenteric | * Nose | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|----------------------------------|-----------------------|
| * Bone Marrow | Hyperplasia | Mild |
| * Heart | Cardiomyopathy | Mild |
| * Kidney | Nephropathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | Fibroadenoma | |
| Note: Lesion is also abscessed. | | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Moderate |
| | Hemorrhage | Minimal |
| | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Edema | Mild |
| * Thymus | Atrophy | Mild |
| * Uterus | Inflammation | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 373

TRT#: 2

SEX: Female

DAY ON TEST: 635

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102189

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lymph Node, Mesenteric | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---|---|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Brain | Glial Cell | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | Hepatocyte | Vacuolization Cytoplasmic | Moderate |
| Note: Glycogen accumulation accounted for the gross lesion. | | | |
| | [Vacuolization Cytoplasmic TGLs = 3-15] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Uterus | Cervix | Hypertrophy | Moderate |
| | [Hypertrophy TGLs = 2-14] | | |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 374

TRT#: 2

SEX: Female

DAY ON TEST: 725

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102190

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 2-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 375

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102191

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|-----------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |

[Hyperplasia TGLs = 1-11]

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 376

TRT#: 2

SEX: Female

DAY ON TEST: 584

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102192

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * 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 | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Glandular | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|------------------------|--|----------------------------------|-----------------------|
| * Brain | Cerebrum | Oligodendroglioma Malignant | |
| | [Oligodendroglioma Malignant TGLs = 3-9] | | |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| | | Ulcer | Minimal |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Brain Cerebrum Oligodendroglioma Malignant

CONTRIBUTORY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 377

TRT#: 2

SEX: Female

DAY ON TEST: 523

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102193

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|----------------------------------|-----------------------|
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| * Thymus | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 378

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102194

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|--|----------------------------------|-------------------|
| * Adrenal Cortex | Hyperplasia | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 5-3+4] | | |
| Lymph Node | Hemorrhage | Moderate |
| [Hemorrhage TGLs = 3-15] | | |
| * Lymph Node, Mesenteric | Histiocytic Sarcoma | |
| [Histiocytic Sarcoma TGLs = 4-16] | | |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | Atrophy | Moderate |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| | Pigmentation | Hemosiderin, Mild |
| * Thymus | Atrophy | Mild |
| * Uterus | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 379

TRT#: 2

SEX: Female

DAY ON TEST: 582

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102195

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| | [Cyst TGLs = 2-14] | Cyst | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | | Metaplasia | Squamous, Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 380

TRT#: 2

SEX: Female

DAY ON TEST: 549

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1102196

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Esophagus
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Skin
- * Urinary Bladder
- Blood Vessel
- * Eye
- * Intestine Small, Duodenum
- * Kidney
- * Pancreas
- * Stomach, Glandular
- * Uterus
- * Bone
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Thyroid Gland
- * Clitoral Gland
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Mammary Gland
- * Salivary Glands
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
 - * Bone Marrow
 - * Brain
 - [Hemorrhage TGLs = 2-9]
 - * Harderian Gland
 - * Heart
 - * Liver
 - * Lung
 - * Lymph Node, Mesenteric
 - [Leukemia Mononuclear TGLs = 3-13]
 - * Ovary
 - * Pituitary Gland
 - * Spleen
 - [Leukemia Mononuclear TGLs = 1-5]
 - * Stomach, Forestomach
 - * Thymus
- Leukemia Mononuclear
Leukemia Mononuclear
Hemorrhage Mild
Leukemia Mononuclear

Leukemia Mononuclear
Leukemia Mononuclear
Leukemia Mononuclear
Leukemia Mononuclear
Leukemia Mononuclear

Cyst
Leukemia Mononuclear
Leukemia Mononuclear
Pigmentation Hemosiderin, Minimal

Hyperplasia Minimal
Atrophy Marked

PRIMARY CAUSE OF DEATH - Spleen Leukemia Mononuclear

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 381

TRT#: 2

SEX: Female

DAY ON TEST: 601

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102197

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Minimal |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,3-12+13] | | |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follicle | Hyperplasia | Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 382

TRT#: 2

SEX: Female

DAY ON TEST: 704

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102198

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | | Hyperplasia | Marked |
| | [Fibroadenoma TGLs = 2,3-14+15] | | |
| | [Hyperplasia TGLs = 4-16] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 383

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102199

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--|---------------|-----------------------|------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 4-3+4] | | | |
| * Mammary Gland | | Adenoma | |
| | | Fibroadenoma | Multiple |
| [Adenoma TGLs = 2-14] | | | |
| [Fibroadenoma TGLs = 1,3-13+15] | | | |
| * Ovary | | Atrophy | Mild |
| | | Cyst | |
| [Cyst TGLs = 5-16] | | | |
| * Pituitary Gland | Pars Distalis | Carcinoma | |
| [Carcinoma TGLs = 6-17] | | | |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 384

TRT#: 2

SEX: Female

DAY ON TEST: 676

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102200

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 385

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102201

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|---------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Ovary | | Atrophy | Mild |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | Lymph Follic | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |
| | | Polyp Stromal | |
| | [Polyp Stromal TGLs = 3-14] | | |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 386

TRT#: 2

SEX: Female

DAY ON TEST: 609

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102202

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|---------------|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Nose | | Inflammation | Mild |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| [Adenoma TGLs = 1-13] | | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |
| * Uterus | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 387

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102203

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Adenoma | |
| | | Fibroadenoma | |
| | [Adenoma TGLs = 2-14] | | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Cyst | |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| Tooth | | Necrosis | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 388

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102204

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------------|--------------------------------|
| * Lung | Alveolar Epith | Hyperplasia
Infiltration Cellular | Marked
Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy
Cyst | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 389

TRT#: 2

SEX: Female

DAY ON TEST: 692

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102205

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|-------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 390

TRT#: 2

SEX: Female

DAY ON TEST: 621

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102206

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 |
| * Kidney | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Clitoral Gland

OBSERVATIONS

- | | | | |
|------------------------|--------------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Liver | | Fatty Change | Minimal |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Adenocarcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 391

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102207

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|------------|--------|--------------|-----------------------|
| * Kidney | | Cyst | Mild |
| | | Nephropathy | Minimal |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 392

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102208

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal 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 |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose |
| * Parathyroid Gland | * Salivary Glands | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---------------------------------|--|----------------------------------|-----------------------|
| Blood Vessel | | Inflammation | Mild |
| Note: Large intestine affected. | | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pancreas | Acinus | Adenoma | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 4-15] | | |
| * Skin | Sebaceous GI | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 393

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102209

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Lymph Node, Mesenteric | | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 3-14] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 394

TRT#: 2

SEX: Female

DAY ON TEST: 727

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102210

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 395

TRT#: 2

SEX: Female

DAY ON TEST: 700

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102211

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|------------------------------|---------------|--------------|----------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Carcinoma | Metastatic (Thyroid Gland) |
| * Mammary Gland | | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | | |
| * Ovary | | Cyst | |
| [Cyst TGLs = 2-14] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Glandular | | Erosion | Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Carcinoma | |
| [Carcinoma TGLs = 3-15] | | | |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 396

TRT#: 2

SEX: Female

DAY ON TEST: 593

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102212

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|------------------------------|---------------|-----------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Minimal |
| * Mammary Gland | | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Leiomyoma | |
| | | Metaplasia | Squamous, Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| [Leiomyoma TGLs = 2-14] | | | |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 397

TRT#: 2

SEX: Female

DAY ON TEST: 726

DOSE: Control (38ppm)

DISP: Terminal Sacrifice

HISTO: 1102213

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 398

TRT#: 2

SEX: Female

DAY ON TEST: 575

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102214

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Stomach, Forestomach
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Glandular
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Nose
- * Salivary Glands
- * Thymus
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Ovary
- * Skin
- * Trachea

OBSERVATIONS

- * Bone Marrow
- * Kidney
- * Liver
- [Hepatodiaphragmatic Nodule TGLs = 2-14]
- * Lung
- [Infiltration Cellular TGLs = 3-3+4]
- * Lymph Node, Mandibular
- * Mammary Gland
- [Adenocarcinoma TGLs = 1-13]
- * Pituitary Gland
- * Spleen
- * Thyroid Gland
- * Uterus
- Pars Distalis
- Lymph Follic
- C Cell
- Endometrium
- Hyperplasia
- Nephropathy
- Basophilic Focus
- Hepatodiaphragmatic Nodule
- Infiltration Cellular
- Infiltration Cellular
- Adenocarcinoma
- Hyperplasia
- Hematopoietic Cell Proliferation
- Hyperplasia
- Pigmentation
- Hyperplasia
- Hyperplasia
- Mild
- Minimal
- Mild
- Hemosiderin, Mild
- Minimal
- Cystic, Minimal
- Mild
- Minimal

PRIMARY CAUSE OF DEATH - Mammary Gland Adenocarcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 399

TRT#: 2

SEX: Female

DAY ON TEST: 362

DOSE: Control (38ppm)

DISP: Moribund Sacrifice

HISTO: 1102215

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|----------------|------------------------------|-----------------------|-------------------------|
| * Heart | Myocardium | Inflammation | Chronic Active, Minimal |
| * Kidney | Cortex | Inflammation | Chronic Active, Minimal |
| * Liver | | Inflammation | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| * Ovary | | Inflammation | Moderate |
| Note: Abscess. | | | |
| | [Inflammation TGLs = 1-13] | | |
| * Spleen | Lymph Follic | Atrophy | Mild |
| * Thymus | | Atrophy | Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |
| | | Thrombosis | Marked |

Note: Lesion has cocci (bacteria) in it.

[Hyperplasia TGLs = 3-15]

[Thrombosis TGLs = 2-14]

PRIMARY CAUSE OF DEATH

- Uterus Thrombosis

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 400

TRT#: 2

SEX: Female

DAY ON TEST: 681

DOSE: Control (38ppm)

DISP: Natural Death

HISTO: 1102216

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------|-------------------|
| * Adrenal Medulla | | Pheochromocytoma Malignant | |
| | [Pheochromocytoma Malignant TGLs = 2-14] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |
| | | Polyp Stromal | |

PRIMARY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Malignant

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 402

TRT#: 8

SEX: Female

DAY ON TEST: 729

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102218

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Ovary | | Atrophy | Moderate |
| | [Cyst TGLs = 3-11] | Cyst | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 403

TRT#: 8

SEX: Female

DAY ON TEST: 692

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102219

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- | | | | |
|-------|-------------------|--------------------------|-------------------|
| * Eye | * Harderian Gland | * Lymph Node, Mandibular | * Salivary Glands |
|-------|-------------------|--------------------------|-------------------|

OBSERVATIONS

- | | | |
|--|-----------------------|-----------------------|
| * Liver | Mixed Cell Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 2-13] | | |
| * Ovary | Atrophy | Mild |
| * Spleen | Pigmentation | Hemosiderin, Moderate |
| * Thymus | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 404

TRT#: 8

SEX: Female

DAY ON TEST: 565

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102220

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | |
|--|----------------------------------|----------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | Hyperplasia | Moderate |
| | Infiltration Cellular | Plasma Cell, Mild |
| | Fibroadenoma | |
| * Mammary Gland | | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Moderate |
| | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 405

TRT#: 8

SEX: Female

DAY ON TEST: 601

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102221

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Pancreas
- * Skin
- * Trachea
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Parathyroid Gland
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Stomach, Glandular
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Nose
- * Salivary Glands
- * Thymus

OBSERVATIONS

- * Adrenal Medulla [Pheochromocytoma Benign TGLs = 2-14]
- * Bone Marrow
- * Kidney
- * Lymph Node, Mandibular
- * Mammary Gland [Fibroadenoma TGLs = 1-13]
- * Ovary
- * Spleen
- * Thyroid Gland C Cell
- * Uterus
- Pheochromocytoma Benign
- Hyperplasia
- Nephropathy
- Infiltration Cellular
- Fibroadenoma
- Cyst
- Hematopoietic Cell Proliferation
- Pigmentation
- Hyperplasia
- Metaplasia
- Mild
- Minimal
- Plasma Cell, Mild
- Mild
- Hemosiderin, Minimal
- Mild
- Squamous, Minimal

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

CONTRIBUTORY CAUSE OF DEATH - Adrenal Medulla Pheochromocytoma Benign

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 406

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102222

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|-----------------|--|-----------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 407

TRT#: 8

SEX: Female

DAY ON TEST: 659

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102223

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Clitoral Gland
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Nose
- * Pituitary Gland
- * Stomach, Glandular
- * Urinary Bladder
- Blood Vessel
- * Esophagus
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Ovary
- * Salivary Glands
- * Thymus
- * Uterus
- * Bone
- * Eye
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Skin
- * Thyroid Gland
- * Brain
- * Harderian Gland
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
- * Bone Marrow
- * Heart
- * Kidney
- * Liver
- * Lung
- [Infiltration Cellular TGLs = 3-3+4]
- * Lymph Node, Mandibular
- * Mammary Gland
- [Fibroadenoma TGLs = 1-13]
- * Spleen
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Nephropathy
- Mixed Cell Focus
- Infiltration Cellular
- Hyperplasia
- Infiltration Cellular
- Fibroadenoma
- Hematopoietic Cell Proliferation
- Minimal
- Mild
- Moderate
- Minimal
- Histiocyte, Minimal
- Mild
- Plasma Cell, Mild
- Moderate

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 408

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102224

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| | [Cyst TGLs = 3-11] | Cyst | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 409

TRT#: 8

SEX: Female

DAY ON TEST: 537

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102225

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| | | Fibroadenoma | |
| * Mammary Gland | | | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 410

TRT#: 8

SEX: Female

DAY ON TEST: 725

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102226

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|---------------------|
| * Liver | | Fatty Change | Mild |
| | [Fatty Change TGLs = 4-6+7+16] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Adenoma | |
| | [Adenoma TGLs = 1-13] | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 2,3-14+15] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | Lymph Follic | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 411

TRT#: 8

SEX: Female

DAY ON TEST: 687

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102227

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Stomach, Forestomach
- * Urinary Bladder
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lung
- * Parathyroid Gland
- * Stomach, Glandular
- * Uterus
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Salivary Glands
- * Thymus
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Skin
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
 - Hyperplasia
 - Thrombosis
- * Kidney
 - Nephropathy
- * Liver
 - Eosinophilic Focus
 - Mixed Cell Focus
- [Eosinophilic Focus TGLs = 7-19]
- [Mixed Cell Focus TGLs = 8-20]
- * Lymph Node, Mandibular
 - Infiltration Cellular
- * Mammary Gland
 - Adenocarcinoma
 - Fibroadenoma
- [Adenocarcinoma TGLs = 2,3,4-14+15+16]
- [Fibroadenoma TGLs = 1-13]
- * Ovary
 - Atrophy
- * Pituitary Gland
 - Adenoma
- [Adenoma TGLs = 5-17]
- * Spleen
 - Hematopoietic Cell Proliferation
 - Hyperplasia
 - Pigmentation
- * Thyroid Gland
 - Adenoma
- [Adenoma TGLs = 6-18]

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 412

TRT#: 8

SEX: Female

DAY ON TEST: 575

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102228

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Nose
- * Pituitary Gland
- * Salivary Glands
- * Stomach, Glandular
- * Thyroid Gland
- * Uterus
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Ovary
- * Skin
- * Trachea
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Parathyroid Gland
- * Stomach, Forestomach
- * Urinary Bladder

OBSERVATIONS

- * Lung [Infiltration Cellular TGLs = 2-3+4] Infiltration Cellular Histiocyte, Minimal
- * Lymph Node, Mandibular Infiltration Cellular Plasma Cell, Moderate
- * Mammary Gland [Fibrosarcoma TGLs = 1-13] Fibrosarcoma
- * Pancreas Acinus Atrophy Mild
- * Spleen Hematopoietic Cell Proliferation Mild
- * Thymus Pigmentation Hemosiderin, Mild
- Atrophy Moderate

PRIMARY CAUSE OF DEATH - Mammary Gland Fibrosarcoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 413

TRT#: 8

SEX: Female

DAY ON TEST: 449

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102229

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * 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 | | |

OBSERVATIONS

- | | | | |
|-----------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| Tooth | | Inflammation | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Adenocarcinoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 414

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102230

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 |
| * Liver | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| | [Pheochromocytoma Benign TGLs = 3-8] | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 415

TRT#: 8

SEX: Female

DAY ON TEST: 481

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102231

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Colon
- * Intestine Large, Rectum
- * Intestine Small, Jejunum
- * Islets, Pancreatic
- * Nose
- * Ovary
- Peripheral Nerve
- * Pituitary Gland
- * Stomach, Glandular
- * Trachea
- Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Pancreas
- * Salivary Glands
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Parathyroid Gland
- * Skin

OBSERVATIONS

- * Kidney Pelvis Inflammation Mild
- * Liver Hepatocyte Vacuolization Cytoplasmic Mild
- * Lung [Infiltration Cellular TGLs = 1-3+4] Infiltration Cellular Histiocyte, Moderate
- * Lymph Node, Mandibular Infiltration Cellular Plasma Cell, Mild
- Spinal Cord Axon Degeneration Minimal
- * Spleen Hematopoietic Cell Proliferation Minimal
- Pigmentation Hemosiderin, Moderate
- * Stomach, Forestomach Epithelium Hyperplasia Mild
- [Hyperplasia TGLs = 2-13] Inflammation Mild
- * Thymus Atrophy Minimal
- * Thyroid Gland C Cell Hyperplasia Marked
- * Urinary Bladder Inflammation Mild
- * Uterus Metaplasia Squamous, Moderate

PRIMARY CAUSE OF DEATH - UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 416

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102232

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|----------|---------------------------------------|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 417

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102233

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lung | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | |
|------------------------------|----------------------------------|----------------------|
| * Adrenal Cortex | Degeneration | Cystic, Mild |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Lymph Node, Mandibular | Infiltration Cellular | Plasma Cell, Minimal |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | Atrophy | Moderate |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 418

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102234

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 419

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102235

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Bone Marrow
- * Brain
- * Eye
- * Harderian Gland
- * Intestine Large, Rectum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Nose
- * Salivary Glands
- * Skin
- * Trachea
- * Urinary Bladder
- * Blood Vessel
- * Clitoral Gland
- * Heart
- * Intestine Small, Jejunum
- * Pancreas
- * Stomach, Forestomach
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Liver
- * Parathyroid Gland
- * Stomach, Glandular

OBSERVATIONS

- * Intestine Large, Colon
- * Intestine Small, Duodenum
- [Leiomyoma TGLs = 3-15]
- * Islets, Pancreatic
- * Kidney
- * Lung
- [Infiltration Cellular TGLs = 4-3+4]
- * Lymph Node, Mandibular
- * Mammary Gland
- [Adenocarcinoma TGLs = 1,2-13+14]
- * Ovary
- * Pituitary Gland
- * Spleen
- Pars Distalis
- * Thymus
- * Thyroid Gland
- * Uterus
- C Cell
- Endometrium
- [Hyperplasia TGLs = 5-11]
- Parasite Metazoan
- Leiomyoma
- Adenoma
- Nephropathy
- Infiltration Cellular
- Infiltration Cellular
- Adenocarcinoma
- Atrophy
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Hyperplasia
- Hyperplasia
- Metaplasia
- Minimal
- Histiocyte, Minimal
- Plasma Cell, Moderate
- Multiple
- Moderate
- Moderate
- Mild
- Hemosiderin, Moderate
- Mild
- Minimal
- Cystic, Moderate
- Squamous, Minimal

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 420

TRT#: 8

SEX: Female

DAY ON TEST: 179

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102236

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * 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 | * Uterus |

MISSING

- * Clitoral Gland

OBSERVATIONS

- | | | | |
|-----------------|------------------------------|----------------------------------|----------|
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 421

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102237

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | Blood Vessel | * Bone | * 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|------------------|------------------------------|----------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Bone Marrow | | Atrophy | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 422

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102238

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|----------------------|
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | Hyperplasia | Marked |
| [Hyperplasia TGLs = 1-13] | | |
| * Ovary | Atrophy | Marked |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Moderate |
| * Uterus | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 423

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102239

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Adenoma | |
| | | Fibroadenoma | |
| | [Adenoma TGLs = 1-13] | | |
| | [Fibroadenoma TGLs = 2-14] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | | Hemorrhage | Moderate |
| | [Hemorrhage TGLs = 3-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Metaplasia | Squamous, Mild |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 425

TRT#: 8

SEX: Female

DAY ON TEST: 659

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102241

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Mild |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 426

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102242

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|---|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Cyst | Squamous |
| | Alveolar Epith | Hyperplasia | Mild |
| | | Infiltration Cellular | Histiocyte, Marked |
| Note: Neoplasm is a keratoacanthoma (coded as squamous cell carcinoma per lexicon). | | | |
| Note: Cornifying epithelioma. | | | |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 427

TRT#: 8

SEX: Female

DAY ON TEST: 654

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102243

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-----------------|--|-----------------------|-----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| * Spleen | Lymph Follic | Atrophy | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-15] | | |
| * Uterus | | Metaplasia | Squamous, Moderate |

PRIMARY CAUSE OF DEATH - Thymus Lymphoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 428

TRT#: 8

SEX: Female

DAY ON TEST: 488

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102244

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lung | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-----------------|-----------------------------------|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| Tooth | | Inflammation | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 429

TRT#: 8

SEX: Female

DAY ON TEST: 701

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102245

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|-----------------|-----------------------------------|----------------------------------|------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 430

TRT#: 8

SEX: Female

DAY ON TEST: 725

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102246

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Moderate |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 431

TRT#: 8

SEX: Female

DAY ON TEST: 725

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102247

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-------------------|
| * Bone | Joint | Degeneration | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Hyperplasia | Mild |
| * Nose | | Inflammation | Minimal |
| * Pituitary Gland | Pars Distalis | Angiectasis | Mild |
| | [Angiectasis TGLs = 2-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 432

TRT#: 8

SEX: Female

DAY ON TEST: 488

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102248

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- * Thymus

OBSERVATIONS

- | | | | |
|-----------------------------|--------------------|-----------------------|-----------------------------|
| * Adrenal Cortex | | Carcinoma | |
| [Carcinoma TGLs = 1-13] | | | |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | Bilateral, Papilla | Inflammation | Acute, Mild |
| | | Nephropathy | Minimal |
| [Inflammation TGLs = 2-5] | | | |
| * Lung | | Carcinoma | Metastatic (Adrenal Cortex) |
| | | Infiltration Cellular | Histiocyte, Moderate |
| * Ovary | | Atrophy | Minimal |
| * Spleen | Lymph Follic | Atrophy | Moderate |
| | | Pigmentation | Hemosiderin, Minimal |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| | | Ulcer | Minimal |

PRIMARY CAUSE OF DEATH - Adrenal Cortex Carcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 433

TRT#: 8

SEX: Female

DAY ON TEST: 568

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102249

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Mild |
| * Thyroid Gland | C Cell | Carcinoma | |
| * Uterus | | Hemangioma | |
| | Endometrium | Hyperplasia | Cystic, Marked |
| | [Hemangioma TGLs = 2-14] | | |
| | [Hyperplasia TGLs = 1-13] | | |

PRIMARY CAUSE OF DEATH - Uterus Hemangioma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 434

TRT#: 8

SEX: Female

DAY ON TEST: 503

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102250

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 |
| * Kidney | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|----------------------------------|----------------------|
| * Bone Marrow | Hyperplasia | Mild |
| * Heart | Cardiomyopathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Mild |
| Tooth | Inflammation | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 435

TRT#: 8

SEX: Female

DAY ON TEST: 725

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102251

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Nose | | Inflammation | Minimal |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 436

TRT#: 8

SEX: Female

DAY ON TEST: 725

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102252

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 2-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Marked |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 437

TRT#: 8

SEX: Female

DAY ON TEST: 552

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102253

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 438

TRT#: 8

SEX: Female

DAY ON TEST: 635

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102254

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Stomach, Forestomach
- * Trachea
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Parathyroid Gland
- * Stomach, Glandular
- * Urinary Bladder
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Thymus
- * Uterus
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Skin
- * Thyroid Gland

MISSING

- * Lymph Node, Mandibular
- * Salivary Glands

OBSERVATIONS

- * Bone Marrow
- * Kidney
- * Lung
 - [Infiltration Cellular TGLs = 5-3+4]
- * Mammary Gland
 - [Fibroadenoma TGLs = 1,2,3-13+14+15]
 - [Schwannoma Malignant TGLs = 4-16]
- * Ovary
- * Spleen
- Tooth
- Hyperplasia
- Nephropathy
- Infiltration Cellular
- Fibroadenoma
- Schwannoma Malignant
- Atrophy
- Hematopoietic Cell Proliferation
- Necrosis
- Mild
- Minimal
- Histiocyte, Mild
- Multiple
- Mild
- Mild
- Moderate

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma
 CONTRIBUTORY CAUSE OF DEATH - Mammary Gland Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 439

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102255

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Bone | | Osteopetrosis | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 440

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102256

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Blood Vessel	* 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	* Liver
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose	* Parathyroid Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Minimal
* Adrenal Medulla		Hyperplasia	Minimal
* Clitoral Gland		Hyperplasia	Mild
* Kidney		Nephropathy	Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[Infiltration Cellular TGLs = 2-3+4]		
* Mammary Gland		Fibroadenoma	
	[Fibroadenoma TGLs = 1-13]		
* Ovary		Atrophy	Moderate
* Pancreas	Acinus	Atrophy	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Hematopoietic Cell Proliferation	Minimal
		Pigmentation	Hemosiderin, Mild
* Thymus		Atrophy	Mild
* Thyroid Gland	C Cell	Hyperplasia	Minimal
* Uterus	Endometrium	Hyperplasia	Cystic, Mild

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 441

TRT#: 8

SEX: Female

DAY ON TEST: 278

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102257

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-------------------|------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * Brain | * Clitoral Gland | * Esophagus |
| * Eye | * Harderian Gland | * Heart | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Liver | * Lung | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|-----------------------------|--------------------------|----------------------------|
| * Intestine Large, Cecum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Pancreas | | |

OBSERVATIONS

- | | | | |
|--------------------------|--------------|--------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Atrophy | Mild |
| * Spleen | Lymph Follic | Atrophy | Moderate |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 442

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102258

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|-----------------|--|----------------------------------|------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| | | Cyst | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 443

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102259

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|-----------------------|
| * Liver | Clear Cell Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | Atrophy | Mild |
| | Cyst | |
| [Cyst TGLs = 3-11] | | |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Moderate |
| * Thymus | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 444

TRT#: 8

SEX: Female

DAY ON TEST: 727

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102260

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|------------------------------|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 445

TRT#: 8

SEX: Female

DAY ON TEST: 717

DOSE: 250ppmModZnExc

DISP: Natural Death

HISTO: 1102261

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Liver | Hepatocyte | Hypertrophy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | Note: Neoplasm is infarcted. | | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 2-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Marked |
| | [Hematopoietic Cell Proliferation TGLs = 3-15] | | |
| * Thymus | | Atrophy | Moderate |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 446

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102262

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--------|----------------------------------|-------------------|
| * Bone Marrow | | Atrophy | Minimal |
| * Lymph Node, Mandibular | | Hyperplasia | Moderate |
| * Ovary | | Atrophy | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Carcinoma | |
- [Carcinoma TGLs = 1-8]

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 447

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102263

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-----------------|---|----------------------------------|---------------------|
| * Bone | Maxilla | Fibrosis | Mild |
| * Bone Marrow | | Hyperplasia | Minimal |
| * Liver | Hepatocyte | Vacuolization Cytoplasmic | Minimal |
| | Note: Glycogen accumulation. | | |
| | [Vacuolization Cytoplasmic TGLs = 3-14] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| * Thymus | | Atrophy | Moderate |
| Tooth | | Necrosis | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 448

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 250ppmModZnExc

DISP: Terminal Sacrifice

HISTO: 1102264

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Angiectasis | Minimal |
| | | Fatty Change | Minimal |
| | | Mixed Cell Focus | |
| | [Angiectasis TGLs = 3-14] | | |
| | [Mixed Cell Focus TGLs = 4-15] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| | | Cyst | |
| | [Cyst TGLs = 2-11] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 449

TRT#: 8

SEX: Female

DAY ON TEST: 656

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102265

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--------------------------|----------------------------|----------------------------------|-----------------------------|
| * Bone | | Carcinoma | Metastatic (Zymbal'S Gland) |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Nose | | Carcinoma | Metastatic (Zymbal'S Gland) |
| | [Carcinoma TGLs = 2-1+2] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Marked |
| Zymbal's Gland | | Carcinoma | |

Note: Zymbal's gland and not Harderian gland as documented in the IANR

[Carcinoma TGLs = 1-13]

PRIMARY CAUSE OF DEATH

- Zymbal's Gland Carcinoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 450

TRT#: 8

SEX: Female

DAY ON TEST: 552

DOSE: 250ppmModZnExc

DISP: Moribund Sacrifice

HISTO: 1102266

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * 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 | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Bone | Maxilla | Fibrosis | Mild |
| * Bone Marrow | | Hyperplasia | Mild |
| * Harderian Gland | | Hyperplasia | Marked |
| * Kidney | Pelvis | Inflammation | Acute, Minimal |
| | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Cyst | |
| | [Cyst TGLs = 2-11] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| Tooth | | Necrosis | Mild |
| * Uterus | | Inflammation | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 451

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102267

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * 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 |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-----------------|-----------------------------------|--------------|-----------------------|
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 452

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102268

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2,4-13+14+15] | | |
| * Ovary | | Atrophy | Minimal |
| | | Cyst | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 453

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102269

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | |
|-----------------------------|----------------------------------|-------------------|
| * Kidney | Mineralization | Mild |
| | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |
| * Mammary Gland | Hyperplasia | Marked |
| [Hyperplasia TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |
| * Thymus | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 454

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102270

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|---|----------------------------------|----------------------|
| * Bone Marrow | | Histiocytic Sarcoma | |
| * Heart | | Histiocytic Sarcoma | |
| * Kidney | | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 2,3,4-14+15+16] | | |
| * Liver | | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 1-13] | | |
| * Lung | | Histiocytic Sarcoma | |
| | | Inflammation | Moderate |
| * Lymph Node, Mesenteric | | Histiocytic Sarcoma | |
| * Ovary | | Atrophy | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Moderate |
| * Uterus | | Metaplasia | Squamous, Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 455

TRT#: 10

SEX: Female

DAY ON TEST: 701

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102271

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|------------------|---|-----------------------|---------------------|
| * Adrenal Cortex | | Degeneration | Cystic, Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2,3,4-13+14+15+16] | | |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 456

TRT#: 10

SEX: Female

DAY ON TEST: 701

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102272

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Nose | * Ovary | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 457

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102273

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|---|-----------------------|----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 5-3+4] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2,3,4-13+14+15+16] | | |
| * Ovary | | Atrophy | Minimal |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 458

TRT#: 10

SEX: Female

DAY ON TEST: 568

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102274

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lung | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Intestine Large, Cecum

OBSERVATIONS

- | | | | |
|---|--------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| [Fibroadenoma TGLs = 1,2,3,-13+14+15] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 459

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102275

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|-----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Marked |
| * Pancreas | Acinus | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 460

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102276

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * Brain | * Clitoral Gland | * Esophagus |
| * Eye | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Ovary | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|-------------------|----------------------|
| * Intestine Large, Colon | | Parasite Metazoan | |
| * Liver | | Basophilic Focus | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Nose | | Inflammation | Marked |
| | [Inflammation TGLs = 2-1] | | |
| * Pancreas | Acinus | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Pigmentation | Hemosiderin, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 461

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102277

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--|-----------------------|----------------------|
| * Kidney | | Mineralization | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 2-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 3-14] | | |
| * Spleen | Lymph Follic | Hyperplasia | Mild |
| | | Pigmentation | Hemosiderin, Minimal |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Metaplasia | Squamous, Moderate |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 462

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102278

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | |
|--|-----------------------|----------------------|
| * Kidney | Nephropathy | Mild |
| * Liver | Eosinophilic Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 1,2-13+14] | | |
| * Pituitary Gland | Pars Distalis | Adenoma |
| [Adenoma TGLs = 4-15] | | |
| * Spleen | Pigmentation | Hemosiderin, Mild |
| * Thymus | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 463

TRT#: 10

SEX: Female

DAY ON TEST: 726

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102279

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 4-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Skin | | Ulcer | Moderate |
| | [Ulcer TGLs = 3-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 464

TRT#: 10

SEX: Female

DAY ON TEST: 726

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102280

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Stomach, Forestomach
- * Urinary Bladder
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Stomach, Glandular
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Salivary Glands
- * Thyroid Gland
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Skin
- * Trachea

OBSERVATIONS

- * Adrenal Cortex
- * Bone Marrow
- * Kidney
- * Liver
 - [Angiectasis TGLs = 2,3-14+15]
- * Lung
 - [Infiltration Cellular TGLs = 6-3+4]
- * Mammary Gland
 - [Adenocarcinoma TGLs = 1-13]
- * Ovary
- * Spleen
- * Thymus
- * Uterus
- Endometrium
- Necrosis
- Hyperplasia
- Nephropathy
- Angiectasis
- Infiltration Cellular
- Adenocarcinoma
- Atrophy
- Hematopoietic Cell Proliferation
- Atrophy
- Hyperplasia
- Minimal
- Mild
- Minimal
- Minimal
- Histiocyte, Moderate
- Moderate
- Moderate
- Mild
- Cystic, Minimal

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 465

TRT#: 10

SEX: Female

DAY ON TEST: 330

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102281

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | Peripheral Nerve | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|------------|-----------------------|----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Minimal |
| * Lymph Node, Mesenteric | | Hyperplasia | Mild |
| Spinal Cord | Axon | Degeneration | Moderate |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Minimal |

PRIMARY CAUSE OF DEATH - Spinal Cord Axon Degeneration

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 466

TRT#: 10

SEX: Female

DAY ON TEST: 635

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102282

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Glandular | * Thymus | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|------------------------|--|----------------------------------|---------------------|
| * Bone Marrow | | Hyperplasia | Marked |
| * Kidney | | Nephropathy | Minimal |
| * Liver | Hepatocyte | Hypertrophy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 4-15] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Marked |
| | [Hematopoietic Cell Proliferation TGLs = 2-14] | | |
| * Stomach, Forestomach | Epithelium | Hyperplasia | Mild |
| | | Ulcer | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Polyp Stromal | |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma
 CONTRIBUTORY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 467

TRT#: 10

SEX: Female

DAY ON TEST: 726

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102283

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * 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 | | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|-----------------------|
| * Heart | Cardiomyopathy | Mild |
| * Kidney | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| | Pigmentation | Hemosiderin, Moderate |
| * Thymus | Atrophy | Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 468

TRT#: 10

SEX: Female

DAY ON TEST: 726

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102284

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|--------------------------------------|----------------------------------|---------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 4-3] | | |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 469

TRT#: 10

SEX: Female

DAY ON TEST: 357

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102285

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---------------|--------------|----------------------------------|----------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Marked |
| | Lymph Follic | Hyperplasia | Mild |
| * Uterus | | Hemorrhage | Marked |
- [Hemorrhage TGLs = 1-11]

PRIMARY CAUSE OF DEATH - Uterus Hemorrhage

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 470

TRT#: 10

SEX: Female

DAY ON TEST: 726

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102286

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|---------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pancreas | Duct | Hyperplasia | Cystic, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 2-14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 471

TRT#: 10

SEX: Female

DAY ON TEST: 488

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102287

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Pancreas | Acinus | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| | | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 472

TRT#: 10

SEX: Female

DAY ON TEST: 727

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102288

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|--|-----------------------|-----------------------|
| * Kidney | Nephropathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | |
| * Nose | Inflammation | Mild |
| * Ovary | Atrophy | Mild |
| * Spleen | Pigmentation | Hemosiderin, Moderate |
| * Thymus | Atrophy | Minimal |
| * Uterus | Metaplasia | Squamous, Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 473

TRT#: 10

SEX: Female

DAY ON TEST: 562

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102289

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * Bone Marrow | * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|------------------------------|-----------------------|-------------------|
| * Brain | | Hydrocephalus | Mild |
| | [Hydrocephalus TGLs = 2-9] | | |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| * Ovary | Interstit Cell | Hyperplasia | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 1-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Marked |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

CONTRIBUTORY CAUSE OF DEATH - Brain Hydrocephalus

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 474

TRT#: 10

SEX: Female

DAY ON TEST: 727

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102290

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|----------------------|
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 2-3+4] | | |
| * Mammary Gland | | Adenocarcinoma | |
| | [Adenocarcinoma TGLs = 1-13] | | |
| * Nose | | Inflammation | Minimal |
| | | Metaplasia | Squamous, Minimal |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 475

TRT#: 10

SEX: Female

DAY ON TEST: 645

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102291

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|--|---------------|----------------------------------|------------------|
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 3-3+4] | | | |
| * Mammary Gland | | Fibroadenoma | |
| [Fibroadenoma TGLs = 1-13] | | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| * Thymus | | Atrophy | Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |
| [Hyperplasia TGLs = 2-11] | | | |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 476

TRT#: 10

SEX: Female

DAY ON TEST: 362

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102292

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lung | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | |
|--------------------------------------|----------------------------------|-------------------|
| * Bone Marrow | Hyperplasia | Mild |
| * Kidney | Nephropathy | Minimal |
| * Lymph Node, Mandibular | Hyperplasia | Moderate |
| * Mammary Gland | Schwannoma Malignant | |
| [Schwannoma Malignant TGLs = 1-13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Minimal |
| | Pigmentation | Hemosiderin, Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Schwannoma Malignant

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 477

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102293

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | |
|--------------------------------|-----------------------|-------------------|
| * Adrenal Cortex | Hyperplasia | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Lung | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | Adenocarcinoma | |
| [Adenocarcinoma TGLs = 1-13] | | |
| * Ovary | Cyst | |
| * Spleen | Pigmentation | Hemosiderin, Mild |
| * Uterus | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 478

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102294

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|-------------------|--------------------------------------|----------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Eosinophilic Focus | |
| | [Eosinophilic Focus TGLs = 2-14] | | |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 3-3] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 479

TRT#: 10

SEX: Female

DAY ON TEST: 587

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102295

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Pituitary Gland
- * Trachea
- * Adrenal Medulla
- * Clitoral Gland
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Skin
- * Urinary Bladder
- Blood Vessel
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Stomach, Forestomach
- * Uterus
- * Bone
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Ovary
- * Stomach, Glandular

MISSING

- * Esophagus
- * Thyroid Gland
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Salivary Glands

OBSERVATIONS

- * Bone Marrow
- * Liver
- * Lung
- * Mammary Gland
- * Pancreas
- * Spleen
- * Thymus
- Hepatocyte
- [Infiltration Cellular TGLs = 3-3+4]
- [Fibroadenoma TGLs = 1,2-13+14]
- Acinus
- Hyperplasia
- Necrosis
- Infiltration Cellular
- Fibroadenoma
- Atrophy
- Hematopoietic Cell Proliferation
- Atrophy
- Mild
- Mild
- Histiocyte, Moderate
- Multiple
- Minimal
- Minimal
- Marked

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 480

TRT#: 10

SEX: Female

DAY ON TEST: 396

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102296

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Lung | * Lymph Node, Mesenteric | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|----------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 481

TRT#: 10

SEX: Female

DAY ON TEST: 728

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102297

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* 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	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	* Uterus

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Kidney		Nephropathy	Minimal
* Lung		Infiltration Cellular	Histiocyte, Mild
	[Infiltration Cellular TGLs = 2-3+4]		
* Pancreas	Acinus	Atrophy	Moderate
* Spleen		Hematopoietic Cell Proliferation	Mild
		Pigmentation	Hemosiderin, Moderate
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	[Adenoma TGLs = 1-13]		

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 482

TRT#: 10

SEX: Female

DAY ON TEST: 728

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102298

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

OBSERVATIONS

- | | | |
|--|----------------------------------|----------------------|
| * Liver | Clear Cell Focus | |
| * Lung | Infiltration Cellular | Histiocyte, Moderate |
| [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | Fibroadenoma | Multiple |
| [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Spleen | Hematopoietic Cell Proliferation | Moderate |
| | Pigmentation | Hemosiderin, Minimal |
| * Thymus | Atrophy | Moderate |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 483

TRT#: 10

SEX: Female

DAY ON TEST: 727

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102299

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Adrenal Medulla
- * Blood Vessel
- * 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
- * Liver
- * Lymph Node, Mesenteric
- * Nose
- * Salivary Glands
- * Skin
- * Stomach, Forestomach
- * Stomach, Glandular
- * Thyroid Gland
- * Trachea
- * Urinary Bladder

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Lung
 - [Infiltration Cellular TGLs = 2-3+4]
 - * Lymph Node, Mandibular
 - * Mammary Gland
 - [Adenoma TGLs = 1-13]
 - * Ovary
 - * Pancreas
 - Acinus
 - * Pituitary Gland
 - Pars Distalis
 - [Hyperplasia TGLs = 3-14]
 - * Spleen
 - * Thymus
 - * Uterus
- | | | |
|--|----------------------------------|-----------------------|
| | Infiltration Cellular | Histiocyte, Mild |
| | Infiltration Cellular | Plasma Cell, Mild |
| | Adenoma | |
| | Atrophy | Minimal |
| | Atrophy | Minimal |
| | Hyperplasia | Moderate |
| | Hematopoietic Cell Proliferation | Mild |
| | Pigmentation | Hemosiderin, Moderate |
| | Atrophy | Mild |
| | Polyp Stromal | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 484

TRT#: 10

SEX: Female

DAY ON TEST: 727

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102300

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|--|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Fatty Change | Minimal |
| * Ovary | | Atrophy | Marked |
| | | Granulosa Cell Tumor Malignant | |
| | [Granulosa Cell Tumor Malignant TGLs = 1-13] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |
| | | Metaplasia | Squamous, Moderate |
| | [Hyperplasia TGLs = 2-14] | | |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 485

TRT#: 10

SEX: Female

DAY ON TEST: 727

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102301

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 2-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 486

TRT#: 10

SEX: Female

DAY ON TEST: 727

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102302

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 487

TRT#: 10

SEX: Female

DAY ON TEST: 726

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102303

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 |
| * Liver | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 1-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Ovary | | Atrophy | Moderate |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Minimal |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 488

TRT#: 10

SEX: Female

DAY ON TEST: 645

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102304

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|-------------------------|----------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Mammary Gland | | Hyperplasia | Minimal |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 1-13] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Minimal |
| * Uterus | | Metaplasia | Squamous, Mild |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 489

TRT#: 10

SEX: Female

DAY ON TEST: 243

DOSE: 500ppm ZnExc

DISP: Natural Death

HISTO: 1102305

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex
* Bone Marrow
* Eye
* Lung
* Salivary Glands

* Adrenal Medulla
* Brain
* Harderian Gland
* Mammary Gland
* Skin

Blood Vessel
* Clitoral Gland
* Heart
* Nose
* Trachea

* Bone
* Esophagus
* Liver
* Pituitary Gland
* Uterus

AUTO PRECLUDES DIAG.

* Intestine Large, Cecum
* Intestine Small, Ileum
* Lymph Node, Mandibular
* Parathyroid Gland
* Thymus

* Intestine Large, Colon
* Intestine Small, Jejunum
* Lymph Node, Mesenteric
* Spleen
* Thyroid Gland

* Intestine Large, Rectum
* Islets, Pancreatic
* Ovary
* Stomach, Forestomach
* Urinary Bladder

* Intestine Small, Duodenum
* Kidney
* Pancreas
* Stomach, Glandular

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 490

TRT#: 10

SEX: Female

DAY ON TEST: 610

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102306

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Nose
- * Pituitary Gland
- * Stomach, Glandular
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Ovary
- * Salivary Glands
- * Thymus
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pancreas
- * Skin
- * Trachea

OBSERVATIONS

- * Bone Marrow
- * Lung
 - [Infiltration Cellular TGLs = 3-3+4]
- * Mammary Gland
 - [Fibroadenoma TGLs = 1,2-13+14]
- * Spleen
- * Thyroid Gland
- * Uterus
- C Cell
- Hyperplasia
- Infiltration Cellular
- Fibroadenoma
- Hematopoietic Cell Proliferation
- Pigmentation
- Adenoma
- Metaplasia
- Mild
- Histiocyte, Mild
- Multiple
- Minimal
- Hemosiderin, Minimal
- Squamous, Minimal

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 491

TRT#: 10

SEX: Female

DAY ON TEST: 728

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102307

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Stomach, Forestomach
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Stomach, Glandular
- Blood Vessel
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mesenteric
- * Salivary Glands
- * Thyroid Gland
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Skin
- * Trachea

OBSERVATIONS

- * Bone Marrow
- * Kidney
- * Liver
- * Lung
- [Infiltration Cellular TGLs = 6-3+4]
- * Mammary Gland
- [Fibroadenoma TGLs = 1,2,3-13+14+15]
- * Ovary
- * Pituitary Gland
- * Spleen
- * Thymus
- * Uterus
- [Adenocarcinoma TGLs = 4-16]
- [Metaplasia TGLs = 5-17]
- Hyperplasia
- Nephropathy
- Fatty Change
- Infiltration Cellular
- Metaplasia
- Fibroadenoma
- Atrophy
- Hyperplasia
- Hematopoietic Cell Proliferation
- Pigmentation
- Atrophy
- Adenocarcinoma
- Metaplasia
- Mild
- Minimal
- Mild
- Histiocyte, Moderate
- Squamous, Minimal
- Multiple
- Marked
- Minimal
- Minimal
- Hemosiderin, Minimal
- Mild
- Squamous, Marked

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 493

TRT#: 10

SEX: Female

DAY ON TEST: 473

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102309

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|----------------------------------|-----------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | Alveolar Epith | Hyperplasia | Minimal |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Moderate |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | Lymph Follic | Hyperplasia | Minimal |
| * Thymus | | Atrophy | Mild |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 494

TRT#: 10

SEX: Female

DAY ON TEST: 728

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102310

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|--|-----------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Hyperplasia | Mild |
| | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 4-15] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thyroid Gland | C Cell | Hyperplasia | Minimal |
| * Uterus | | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 495

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102311

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Bone | * 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 | * Liver |
| * Lymph Node, Mandibular | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--|---------------|----------------------------------|------------------|
| * Adrenal Medulla | | Hyperplasia | Minimal |
| Blood Vessel | | Inflammation | Minimal |
| Note: Pancreas affected. | | | |
| * Bone Marrow | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Mild |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| [Infiltration Cellular TGLs = 1-3+4] | | | |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Ovary | | Atrophy | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| [Hyperplasia TGLs = 2-13] | | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| * Thyroid Gland | C Cell | Hyperplasia | Mild |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 496

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102312

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|-------------------|-----------------------------|----------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Ovary | | Atrophy | Mild |
| | | Cyst | |
| * Pancreas | Acinus | Hyperplasia | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| | [Hyperplasia TGLs = 1-13] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Minimal |
| | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 497

TRT#: 10

SEX: Female

DAY ON TEST: 714

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102313

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * Bone |
| * 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 | * Liver | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-------------------|
| * Bone Marrow | | Hyperplasia | Moderate |
| * Lung | | Infiltration Cellular | Histiocyte, Mild |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Lymph Node, Mandibular | | Infiltration Cellular | Plasma Cell, Mild |
| * Mammary Gland | | Fibroadenoma | Multiple |
| | [Fibroadenoma TGLs = 1,2-13+14] | | |
| * Ovary | | Atrophy | Marked |
| * Spleen | | Hematopoietic Cell Proliferation | Marked |
| * Thymus | | Atrophy | Mild |
| * Thyroid Gland | C Cell | Adenoma | |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

* PROTOCOL REQUIRED TISSUE

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 498

TRT#: 10

SEX: Female

DAY ON TEST: 651

DOSE: 500ppm ZnExc

DISP: Moribund Sacrifice

HISTO: 1102314

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|---|-----------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Moderate |
| | [Infiltration Cellular TGLs = 3-3+4] | | |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Minimal |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| | [Adenoma TGLs = 2-14] | | |
| * Spleen | | Pigmentation | Hemosiderin, Moderate |
| * Thymus | | Thymoma Malignant | |
| | Note: Neoplasm is actually an adenocarcinoma. | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |
| | | Metaplasia | Squamous, Minimal |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 499

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102315

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | Blood Vessel | * 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 | * Liver |
| * Lung | * Lymph Node, Mandibular | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---|--------|----------------------------------|----------|
| * Lymph Node, Mesenteric
[Hemangiosarcoma TGLs = 3-15] | | Hemangiosarcoma | |
| * Mammary Gland
[Fibroadenoma TGLs = 1,2-13+14] | | Fibroadenoma | Multiple |
| * Nose | | Inflammation | Minimal |
| * Ovary | | Cyst | |
| * Pancreas | Acinus | Depletion Secretory | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| * Thymus | | Atrophy | Mild |

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 05/25/2016

Time Report Requested: 10:06:20

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

ANIMAL ID: 500

TRT#: 10

SEX: Female

DAY ON TEST: 725

DOSE: 500ppm ZnExc

DISP: Terminal Sacrifice

HISTO: 1102316

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | Blood Vessel | * 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 | * Lymph Node, Mandibular | * Nose |
| * Pancreas | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|---|-----------------------|---------------------|
| * Adrenal Cortex | | Degeneration | Cystic, Mild |
| * Liver | | Fatty Change | Minimal |
| * Lung | | Infiltration Cellular | Histiocyte, Minimal |
| | [Infiltration Cellular TGLs = 2,3-3+14] | | |
| * Lymph Node, Mesenteric | | Infiltration Cellular | Histiocyte, Mild |
| * Mammary Gland | | Fibroadenoma | |
| | [Fibroadenoma TGLs = 1-13] | | |
| * Ovary | | Atrophy | Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Marked |
| | [Hyperplasia TGLs = 4-15] | | |
| * Spleen | | Pigmentation | Hemosiderin, Mild |
| * Thymus | | Atrophy | Mild |
| * Uterus | | Metaplasia | Squamous, Minimal |

*** END OF REPORT ***