

**TDMS No.** 60311 - 04

**Test Type:** 90-DAY

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** MICE/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

COBALT

**CAS Number:** 7440-48-4

F1\_M3

**Date Report Reqsted:** 06/18/2007

**Time Report Reqsted:** 13:56:10

**First Dose M/F:** 03/07/05 / 03/07/05

**Lab:** BNW

**C Number:** C60311  
**Lock Date:** 11/29/2005  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**TDMSE Version:** 1.7.0

TDMS No. 60311 - 04

Test Type: 90-DAY

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 1 TMT: 1  
DOSE: control

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53136

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Harderian Gland  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lung  
\* Nose  
\* Prostate  
\* Spleen  
\* Thymus

\* Adrenal Medulla  
\* Epididymis  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Bronchial  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Thyroid Gland

\* Bone  
\* Esophagus  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Lymph Node, Mediastinal  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Trachea

\* Bone Marrow  
\* Eye  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Liver  
\* Lymph Node, Mesenteric  
\* Preputial Gland  
\* Skin  
\* Testes  
\* Urinary Bladder

MISSING

\* Gallbladder

\* Lymph Node, Mandibular

\* Mammary Gland

\* Parathyroid Gland

TDMS No. 60311 - 04

Test Type: 90-DAY

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 2 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53137

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Lymph Node, Bronchial
- \* Parathyroid Gland
- \* Lymph Node, Mandibular
- \* Lymph Node, Mediastinal
- \* Mammary Gland

OBSERVATIONS

- \* Kidney Nephropathy Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 3 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53138

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Lymph Node, Bronchial
- \* Lymph Node, Mandibular
- \* Lymph Node, Mediastinal
- \* Mammary Gland

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 4 TMT: 1  
DOSE: control

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53139

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes
- \* Urinary Bladder

- \* Adrenal Medulla
- \* Epididymis
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus

- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Thyroid Gland

- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea

MISSING

- \* Lymph Node, Bronchial

- \* Lymph Node, Mediastinal

- \* Mammary Gland

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 5 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53140

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes
- \* Urinary Bladder

- \* Adrenal Medulla
- \* Epididymis
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus

- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Thyroid Gland

- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea

MISSING

- \* Lymph Node, Bronchial

- \* Lymph Node, Mediastinal

- \* Mammary Gland

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 6 TMT: 1  
DOSE: control

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53141

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- |                          |                           |                 |                     |
|--------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|--------------------------|---------------------------|-----------------|---------------------|

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 7 TMT: 1  
DOSE: control

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53142

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Nose
- \* Prostate
- \* Spleen
- \* Thymus

- \* Adrenal Medulla
- \* Epididymis
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Thyroid Gland

- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Bronchial
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea

- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Testes
- \* Urinary Bladder

MISSING

- \* Lymph Node, Mandibular

- \* Lymph Node, Mediastinal

- \* Mammary Gland

- \* Parathyroid Gland



TDMS No. 60311 - 04

Test Type: 90-DAY

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 8 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53143

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Lymph Node, Mandibular
- \* Lymph Node, Mediastinal
- \* Mammary Gland

OBSERVATIONS

- \* Eye Hemorrhage Acute, Moderate

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 9 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53144

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Lymph Node, Mediastinal
- \* Mammary Gland
- \* Parathyroid Gland

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 10 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53145

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Lymph Node, Bronchial
- \* Lymph Node, Mediastinal
- \* Mammary Gland
- \* Parathyroid Gland

OBSERVATIONS

- \* Lymph Node, Mesenteric
- Lymphocyte
- Necrosis
- Mild

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 201 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53236

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose Testes

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 202 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53237

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 203 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53238

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |             |
|--------------------|-----|--------------|-------------|
| <b>ANIMAL NUM:</b> | 204 | <b>TMT:</b>  | 3           |
|                    |     | <b>DOSE:</b> | 0.625 mg/m3 |

|              |                    |
|--------------|--------------------|
| <b>SEX:</b>  | Male               |
| <b>DISP:</b> | Terminal Sacrifice |

|                     |       |
|---------------------|-------|
| <b>DAY ON TEST:</b> | 95    |
| <b>HISTO:</b>       | 53239 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|        |        |
|--------|--------|
| * Nose | Testes |
|--------|--------|

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 205 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53240

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 206 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53241

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 207    TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53242

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ORGAN AND ACCOUNTABLE SITE STATUS

---

NORMAL

Testes

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OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 208 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53243

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   |                        | Hemorrhage                | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |             |
|--------------------|-----|--------------|-------------|
| <b>ANIMAL NUM:</b> | 209 | <b>TMT:</b>  | 3           |
|                    |     | <b>DOSE:</b> | 0.625 mg/m3 |

|              |                    |
|--------------|--------------------|
| <b>SEX:</b>  | Male               |
| <b>DISP:</b> | Terminal Sacrifice |

|                     |       |
|---------------------|-------|
| <b>DAY ON TEST:</b> | 95    |
| <b>HISTO:</b>       | 53244 |

ORGAN AND ACCOUNTABLE SITE STATUS

**NORMAL**

|        |        |
|--------|--------|
| * Nose | Testes |
|--------|--------|

**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 210 TMT: 3  
DOSE: 0.625 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53245

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 401 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53216

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Respirat Epith<br>Olfactory Epi    | Degeneration<br>Degeneration                       | Minimal<br>Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 402 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53217

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 403 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53218

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ORGAN AND ACCOUNTABLE SITE STATUS

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NORMAL

Testes

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OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 404 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53219

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 405 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53220

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 406 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53221

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 407 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53222

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 408    TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53223

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ORGAN AND ACCOUNTABLE SITE STATUS

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NORMAL

Testes

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OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 409 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53224

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 410 TMT: 5  
DOSE: 1.25 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53225

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 601 TMT: 7 DOSE: 2.5 mg/m3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 95 HISTO: 53196

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hemorrhage                | Minimal             |
|          | Alveolus               | Hyperplasia               | Minimal             |
|          | Bronchiole, Epithelium | Infiltration Cellular     | Histiocyte, Minimal |
|          |                        | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 602 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53197

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 603 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53198

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 604 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53199

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 605 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53200

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 606 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53201

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 607 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53202

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 608 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53203

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 609 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53204

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 610 TMT: 7  
DOSE: 2.5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53205

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Testes

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 801 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53176 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Minimal              |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild     |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal              |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                 |
|          |               | Olfactory Epi          | Degeneration              | Mild                 |
|          |               | Respirat Epith         | Degeneration              | Minimal              |
|          |               | Olfactory Epi          | Hyperplasia               | Minimal              |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Minimal    |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 802 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53177 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                         |
|----------|---------------|------------------------|---------------------------|-------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild          |
| * Lung   |               |                        | Hemorrhage                | Minimal                 |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                    |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild        |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal                 |
|          |               | Alveolus               | Proteinosis               | Minimal                 |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                    |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                         |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                    |
|          |               | Olfactory Epi          | Degeneration              | Mild                    |
|          |               | Respirat Epith         | Degeneration              | Mild                    |
|          |               |                        | Inflammation              | Chronic Active, Minimal |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Minimal       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 803 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53178 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                         |
|----------|---------------|------------------------|---------------------------|-------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild          |
| * Lung   |               |                        | Hemorrhage                | Minimal                 |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                    |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild        |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal                 |
|          |               | Alveolus               | Proteinosis               | Minimal                 |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                    |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                         |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                    |
|          |               | Olfactory Epi          | Degeneration              | Mild                    |
|          |               | Respirat Epith         | Degeneration              | Mild                    |
|          |               |                        | Inflammation              | Chronic Active, Minimal |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Minimal       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 804 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53179 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                   |
|----------|---------------|------------------------|---------------------------|-------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild    |
| * Lung   |               |                        | Hemorrhage                | Minimal           |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild              |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild  |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal           |
|          |               | Alveolus               | Proteinosis               | Minimal           |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate          |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                   |
| * Nose   |               | Olfactory Epi          | Degeneration              | Mild              |
|          |               | Respirat Epith         | Degeneration              | Mild              |
|          |               | Olfactory Epi          | Hyperplasia               | Minimal           |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Minimal |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 805 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53180 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               | Bronchiole, Epithelium | Hyperplasia               | Mild                 |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild     |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal              |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                 |
|          |               | Olfactory Epi          | Degeneration              | Mild                 |
|          |               | Respirat Epith         | Degeneration              | Mild                 |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Minimal    |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 806 TMT: 9  
DOSE: 5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53181

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |                            |                           |                   |
|----------|----------------------------|---------------------------|-------------------|
| * Larynx |                            | Metaplasia                | Squamous, Mild    |
| * Lung   | Bronchiole, Epithelium     | Hyperplasia               | Mild              |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Mild  |
|          | Alv Bron, Epithelium       | Karyomegaly               | Minimal           |
|          | Alveolus                   | Proteinosis               | Minimal           |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Moderate          |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                   |
| * Nose   | Turbinate                  | Atrophy                   | Mild              |
|          | Olfactory Epi              | Degeneration              | Mild              |
|          | Respirat Epith             | Degeneration              | Mild              |
|          | Respirat Epith             | Metaplasia                | Squamous, Minimal |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 807 TMT: 9  
DOSE: 5 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53182

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |                            |                           |                         |
|----------|----------------------------|---------------------------|-------------------------|
| * Larynx |                            | Metaplasia                | Squamous, Mild          |
| * Lung   |                            | Hemorrhage                | Minimal                 |
|          | Bronchiole, Epithelium     | Hyperplasia               | Mild                    |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Mild        |
|          | Alv Bron, Epithelium       | Karyomegaly               | Minimal                 |
|          | Alveolus                   | Proteinosis               | Minimal                 |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Moderate                |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                         |
| * Nose   |                            | Atrophy                   | Moderate                |
|          | Turbinate                  | Degeneration              | Mild                    |
|          | Olfactory Epi              | Degeneration              | Mild                    |
|          | Respirat Epith             | Inflammation              | Chronic Active, Minimal |
|          | Respirat Epith             | Metaplasia                | Squamous, Minimal       |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 808 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53183 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                         |
|----------|---------------|------------------------|---------------------------|-------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Minimal       |
| * Lung   |               | Bronchiole, Epithelium | Hyperplasia               | Mild                    |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild        |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal                 |
|          |               | Alveolus               | Proteinosis               | Minimal                 |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate                |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                         |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                    |
|          |               | Olfactory Epi          | Degeneration              | Mild                    |
|          |               | Respirat Epith         | Degeneration              | Mild                    |
|          |               |                        | Inflammation              | Chronic Active, Minimal |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild          |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 809 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53184 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                 |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild     |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal              |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                 |
|          |               | Olfactory Epi          | Degeneration              | Mild                 |
|          |               | Respirat Epith         | Degeneration              | Mild                 |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 810 | <b>TMT:</b>  | 9       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53185 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Testes

OBSERVATIONS

|          |                            |                           |                         |
|----------|----------------------------|---------------------------|-------------------------|
| * Larynx |                            | Metaplasia                | Squamous, Mild          |
| * Lung   |                            | Hemorrhage                | Mild                    |
|          | Bronchiole, Epithelium     | Hyperplasia               | Mild                    |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Mild        |
|          | Alv Bron, Epithelium       | Karyomegaly               | Minimal                 |
|          | Alveolus                   | Proteinosis               | Minimal                 |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Mild                    |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                         |
| * Nose   | Olfactory Epi              | Degeneration              | Mild                    |
|          | Respirat Epith             | Degeneration              | Mild                    |
|          |                            | Inflammation              | Chronic Active, Minimal |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild          |

Note: NOSE, TURBINATE - INSUFFICIENT TISSUE

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

|                    |      |              |          |              |                    |                     |       |
|--------------------|------|--------------|----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 1001 | <b>TMT:</b>  | 11       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |      | <b>DOSE:</b> | 10 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53156 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Mediastinal | * Lymph Node, Mesenteric    | * Pancreas               | * Parathyroid Gland        |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Spleen                    | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Thymus                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

MISSING

- |                         |                 |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

INSUFFICIENT TISSUE

- \* Pituitary Gland

OBSERVATIONS

- |              |                             |                           |                      |
|--------------|-----------------------------|---------------------------|----------------------|
| * Epididymis |                             | Hypospermia               | Moderate             |
| * Larynx     |                             | Metaplasia                | Squamous, Mild       |
| * Lung       |                             | Hemorrhage                | Minimal              |
|              | Bronchiole, Epithelium      | Hyperplasia               | Moderate             |
|              | Alveolus                    | Infiltration Cellular     | Histiocyte, Moderate |
|              | Alv Bron, Epithelium        | Karyomegaly               | Moderate             |
|              | Alveolus                    | Proteinosis               | Mild                 |
|              | Bronchiole, Epithelium      | Vacuolization Cytoplasmic | Marked               |
|              | [ Hyperplasia TGLs = 2-4 ]  |                           |                      |
| * Nose       |                             | Atrophy                   | Moderate             |
|              | Turbinat                    | Degeneration              | Moderate             |
|              | Olfactory Epi               | Degeneration              | Mild                 |
|              | Respirat Epith              | Inflammation              | Chronic Active, Mild |
|              | Respirat Epith              | Metaplasia                | Squamous, Mild       |
| * Testes     |                             | Degeneration              | Moderate             |
|              | Germinal Epith              |                           |                      |
|              | [ Degeneration TGLs = 1-8 ] |                           |                      |

\* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

|                    |      |              |          |              |                    |                     |       |
|--------------------|------|--------------|----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 1002 | <b>TMT:</b>  | 11       | <b>SEX:</b>  | Male               | <b>DAY ON TEST:</b> | 95    |
|                    |      | <b>DOSE:</b> | 10 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53157 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Bronchial    |
| * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Pancreas               | * Pituitary Gland          |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Spleen                    | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Thymus                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

MISSING

- |                           |                 |                     |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- |              |                             |                           |                      |
|--------------|-----------------------------|---------------------------|----------------------|
| * Epididymis |                             | Hypospermia               | Moderate             |
| * Larynx     |                             | Metaplasia                | Squamous, Mild       |
| * Lung       |                             | Hemorrhage                | Minimal              |
|              | Bronchiole, Epithelium      | Hyperplasia               | Moderate             |
|              | Alveolus                    | Infiltration Cellular     | Histiocyte, Moderate |
|              | Alv Bron, Epithelium        | Karyomegaly               | Moderate             |
|              | Alveolus                    | Proteinosis               | Mild                 |
|              | Bronchiole, Epithelium      | Vacuolization Cytoplasmic | Moderate             |
|              | [ Hyperplasia TGLs = 2-4 ]  |                           |                      |
| * Nose       |                             | Atrophy                   | Moderate             |
|              | Turbinat                    | Degeneration              | Moderate             |
|              | Olfactory Epi               | Degeneration              | Mild                 |
|              | Respirat Epith              | Hyperplasia               | Mild                 |
|              | Olfactory Epi               | Inflammation              | Chronic Active, Mild |
|              | Respirat Epith              | Metaplasia                | Squamous, Mild       |
| * Testes     |                             | Degeneration              | Moderate             |
|              | Germinal Epith              |                           |                      |
|              | [ Degeneration TGLs = 1-8 ] |                           |                      |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

|                         |                       |                                 |                        |
|-------------------------|-----------------------|---------------------------------|------------------------|
| <b>ANIMAL NUM:</b> 1003 | <b>TMT:</b> 11        | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 95 |
|                         | <b>DOSE:</b> 10 mg/m3 | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b> 53158    |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Bone                   | * Bone Marrow              | * Brain                   |
| * Esophagus                 | * Eye                    | * Gallbladder              | * 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, Bronchial  | * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  |
| * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          | * Preputial Gland         |
| * Prostate                  | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Spleen                    | * Stomach, Forestomach   | * Stomach, Glandular       | * Thymus                  |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

MISSING

- |                           |                 |
|---------------------------|-----------------|
| * Lymph Node, Mediastinal | * Mammary Gland |
|---------------------------|-----------------|

INSUFFICIENT TISSUE

- \* Adrenal Medulla

OBSERVATIONS

- |              |                             |                           |                      |
|--------------|-----------------------------|---------------------------|----------------------|
| * Epididymis |                             | Hypospermia               | Moderate             |
| * Kidney     |                             | Nephropathy               | Minimal              |
| * Larynx     |                             | Metaplasia                | Squamous, Mild       |
| * Lung       | Bronchiole, Epithelium      | Hyperplasia               | Moderate             |
|              | Alveolus                    | Infiltration Cellular     | Histiocyte, Moderate |
|              | Alv Bron, Epithelium        | Karyomegaly               | Moderate             |
|              | Alveolus                    | Proteinosis               | Mild                 |
|              | Bronchiole, Epithelium      | Vacuolization Cytoplasmic | Marked               |
|              | [ Hyperplasia TGLs = 2-4 ]  |                           |                      |
| * Nose       | Turbinate                   | Atrophy                   | Moderate             |
|              | Olfactory Epi               | Degeneration              | Moderate             |
|              | Respirat Epith              | Degeneration              | Mild                 |
|              |                             | Inflammation              | Chronic Active, Mild |
|              | Respirat Epith              | Metaplasia                | Squamous, Mild       |
| * Testes     | Germinal Epith              | Degeneration              | Moderate             |
|              | [ Degeneration TGLs = 1-8 ] |                           |                      |

\* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

|                         |                       |                                 |                        |
|-------------------------|-----------------------|---------------------------------|------------------------|
| <b>ANIMAL NUM:</b> 1004 | <b>TMT:</b> 11        | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 95 |
|                         | <b>DOSE:</b> 10 mg/m3 | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b> 53159    |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Bronchial  | * Lymph Node, Mandibular   |
| * Lymph Node, Mesenteric  | * Pancreas                  | * Pituitary Gland        | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular     | * Thymus                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- |                           |                 |                     |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- |              |                             |                           |                          |
|--------------|-----------------------------|---------------------------|--------------------------|
| * Epididymis |                             | Hypospermia               | Moderate                 |
| * Kidney     | Renal Tubule                | Cyst                      | Multiple                 |
|              | [ Cyst TGLs = 2-6 ]         |                           |                          |
| * Larynx     |                             | Metaplasia                | Squamous, Mild           |
| * Lung       | Bronchiole, Epithelium      | Hyperplasia               | Moderate                 |
|              | Alveolus                    | Infiltration Cellular     | Histiocyte, Moderate     |
|              | Alv Bron, Epithelium        | Karyomegaly               | Moderate                 |
|              |                             | Metaplasia                | Osseous, Minimal         |
|              | Alveolus                    | Proteinosis               | Mild                     |
|              | Bronchiole, Epithelium      | Vacuolization Cytoplasmic | Marked                   |
|              | [ Hyperplasia TGLs = 3-4 ]  |                           |                          |
| * Nose       | Turbinates                  | Atrophy                   | Moderate                 |
|              | Olfactory Epi               | Degeneration              | Moderate                 |
|              | Respirat Epith              | Degeneration              | Mild                     |
|              |                             | Inflammation              | Chronic Active, Moderate |
|              | Respirat Epith              | Metaplasia                | Squamous, Mild           |
| * Testes     | Germinal Epith              | Degeneration              | Moderate                 |
|              | [ Degeneration TGLs = 1-8 ] |                           |                          |

\* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1005 TMT: 11  
DOSE: 10 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53160

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Gallbladder
- \* Lymph Node, Bronchial
- \* Mammary Gland

OBSERVATIONS

- \* Larynx
  - \* Lung
    - Bronchiole, Epithelium
    - Alveolus
    - Alv Bron, Epithelium
    - Alveolus
    - Bronchiole, Epithelium
  - \* Nose
    - Turbinate
    - Olfactory Epi
    - Respirat Epith
  - \* Testes
    - Respirat Epith
    - Germinal Epith
- [ Hyperplasia TGLs = 2-4 ]
- [ Degeneration TGLs = 1-8 ]
- Metaplasia
  - Hyperplasia
  - Infiltration Cellular
  - Karyomegaly
  - Proteinosis
  - Vacuolization Cytoplasmic
  - Atrophy
  - Degeneration
  - Degeneration
  - Inflammation
  - Metaplasia
  - Degeneration
  - Squamous, Mild
  - Moderate
  - Histiocyte, Moderate
  - Moderate
  - Mild
  - Marked
  - Moderate
  - Moderate
  - Mild
  - Chronic Active, Mild
  - Squamous, Mild
  - Moderate



TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1006 TMT: 11  
DOSE: 10 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53161

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- \* Mammary Gland

OBSERVATIONS

- |   |  |   |  |
|---|--|---|--|
| <ul style="list-style-type: none"> <li>* Larynx</li> <li>* Lung</li> </ul>  | <ul style="list-style-type: none"> <li>Bronchiole, Epithelium</li> <li>Alveolus</li> <li>Alv Bron, Epithelium</li> <li>Alveolus</li> <li>Bronchiole, Epithelium</li> </ul> | <ul style="list-style-type: none"> <li>Metaplasia</li> <li>Hemorrhage</li> <li>Hyperplasia</li> <li>Infiltration Cellular</li> <li>Karyomegaly</li> <li>Proteinosis</li> <li>Vacuolization Cytoplasmic</li> </ul> | <ul style="list-style-type: none"> <li>Squamous, Mild</li> <li>Minimal</li> <li>Moderate</li> <li>Histiocyte, Moderate</li> <li>Moderate</li> <li>Mild</li> <li>Marked</li> </ul>          |
| <ul style="list-style-type: none"> <li>[ Hyperplasia TGLs = 2-4 ]</li> <li>* Lymph Node, Bronchial</li> <li>* Nose</li> </ul> | <ul style="list-style-type: none"> <li>Turbinat</li> <li>Olfactory Epi</li> <li>Respirat Epith</li> </ul>  | <ul style="list-style-type: none"> <li>Erythrophagocytosis</li> <li>Atrophy</li> <li>Degeneration</li> <li>Degeneration</li> <li>Inflammation</li> <li>Metaplasia</li> <li>Degeneration</li> </ul>                | <ul style="list-style-type: none"> <li>Minimal</li> <li>Moderate</li> <li>Moderate</li> <li>Mild</li> <li>Chronic Active, Moderate</li> <li>Squamous, Minimal</li> <li>Moderate</li> </ul> |
| <ul style="list-style-type: none"> <li>* Testes</li> <li>[ Degeneration TGLs = 1-8 ]</li> </ul>                               | <ul style="list-style-type: none"> <li>Respirat Epith</li> <li>Germinal Epith</li> </ul>   | <ul style="list-style-type: none"> <li>Metaplasia</li> <li>Degeneration</li> </ul>  | <ul style="list-style-type: none"> <li>Squamous, Minimal</li> <li>Moderate</li> </ul>  |

|                         |                       |                                 |                        |
|-------------------------|-----------------------|---------------------------------|------------------------|
| <b>ANIMAL NUM:</b> 1007 | <b>TMT:</b> 11        | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 95 |
|                         | <b>DOSE:</b> 10 mg/m3 | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b> 53162    |

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Esophagus                 | * Eye                    |
| * Gallbladder              | * 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   | * Pancreas                | * Parathyroid Gland         | * Pituitary Gland        |
| * Preputial Gland          | * Prostate                | * Salivary Glands           | * Seminal Vesicle        |
| * Skin                     | * Spleen                  | * Stomach, Glandular        | * Thymus                 |
| * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |                          |

**MISSING**

- |                         |                           |                 |
|-------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|---------------------------|-----------------|

**OBSERVATIONS**

- |                        |                             |                           |                          |
|------------------------|-----------------------------|---------------------------|--------------------------|
| * Epididymis           |                             | Hypospermia               | Mild                     |
| * Kidney               | Renal Tubule                | Cyst                      |                          |
| * Larynx               |                             | Metaplasia                | Squamous, Mild           |
| * Lung                 | Bronchiole, Epithelium      | Hemorrhage                | Minimal                  |
|                        | Alveolus                    | Hyperplasia               | Moderate                 |
|                        | Alv Bron, Epithelium        | Infiltration Cellular     | Histiocyte, Moderate     |
|                        | Alveolus                    | Karyomegaly               | Moderate                 |
|                        | Bronchiole, Epithelium      | Proteinosis               | Mild                     |
|                        | [ Hyperplasia TGLs = 2-4 ]  | Vacuolization Cytoplasmic | Marked                   |
| * Nose                 | Turbinate                   | Atrophy                   | Moderate                 |
|                        | Olfactory Epi               | Degeneration              | Moderate                 |
|                        | Respirat Epith              | Degeneration              | Mild                     |
|                        | Respirat Epith              | Inflammation              | Chronic Active, Moderate |
|                        |                             | Metaplasia                | Squamous, Mild           |
| * Stomach, Forestomach |                             | Hyperkeratosis            | Mild                     |
| * Testes               | Germinal Epith              | Degeneration              | Moderate                 |
|                        | [ Degeneration TGLs = 1-8 ] |                           |                          |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1008 TMT: 11  
DOSE: 10 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53163

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow            |
| * Brain                    | * Epididymis              | * Esophagus                 | * Eye                    |
| * Gallbladder              | * 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, Mediastinal  | * Lymph Node, Mesenteric  | * Pancreas                  | * Pituitary Gland        |
| * Preputial Gland          | * Prostate                | * Salivary Glands           | * Seminal Vesicle        |
| * Skin                     | * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Thymus                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

MISSING

- |                          |                 |                     |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

OBSERVATIONS

- |                         |                             |                           |                      |
|-------------------------|-----------------------------|---------------------------|----------------------|
| * Larynx                |                             | Metaplasia                | Squamous, Mild       |
| * Lung                  |                             | Hemorrhage                | Minimal              |
|                         | Bronchiole, Epithelium      | Hyperplasia               | Moderate             |
|                         | Alveolus                    | Infiltration Cellular     | Histiocyte, Moderate |
|                         | Alv Bron, Epithelium        | Karyomegaly               | Moderate             |
|                         | Alveolus                    | Proteinosis               | Mild                 |
|                         | Bronchiole, Epithelium      | Vacuolization Cytoplasmic | Marked               |
|                         | [ Hyperplasia TGLs = 2-4 ]  |                           |                      |
| * Lymph Node, Bronchial |                             | Erythrophagocytosis       | Minimal              |
| * Nose                  |                             | Atrophy                   | Moderate             |
|                         | Turbinates                  | Degeneration              | Moderate             |
|                         | Olfactory Epi               | Degeneration              | Mild                 |
|                         | Respirat Epith              | Inflammation              | Chronic Active, Mild |
|                         | Respirat Epith              | Metaplasia                | Squamous, Mild       |
| * Testes                |                             | Degeneration              | Moderate             |
|                         | Germinal Epith              |                           |                      |
|                         | [ Degeneration TGLs = 1-8 ] |                           |                      |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1009 TMT: 11  
DOSE: 10 mg/m3

SEX: Male  
DISP: Terminal Sacrifice

DAY ON TEST: 95  
HISTO: 53164

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Bronchial
- \* Preputial Gland
- \* Skin
- \* Thymus
- \* Adrenal Medulla
- \* Epididymis
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Spleen
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Trachea
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Liver
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Urinary Bladder

MISSING

- \* Lymph Node, Mandibular
- \* Lymph Node, Mediastinal
- \* Mammary Gland
- \* Parathyroid Gland

OBSERVATIONS

- \* Larynx
- \* Lung
- [ Hyperplasia TGLs = 2-4 ]
- \* Nose
- \* Testes
- [ Degeneration TGLs = 1-8 ]
- Metaplasia
- Hemorrhage
- Hyperplasia
- Infiltration Cellular
- Karyomegaly
- Proteinosis
- Vacuolization Cytoplasmic
- Atrophy
- Degeneration
- Degeneration
- Hyperplasia
- Inflammation
- Metaplasia
- Degeneration
- Squamous, Moderate
- Minimal
- Moderate
- Histiocyte, Moderate
- Moderate
- Mild
- Marked
- Moderate
- Moderate
- Mild
- Minimal
- Chronic Active, Moderate
- Squamous, Mild
- Moderate

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                         |                       |                                 |                        |
|-------------------------|-----------------------|---------------------------------|------------------------|
| <b>ANIMAL NUM:</b> 1010 | <b>TMT:</b> 11        | <b>SEX:</b> Male                | <b>DAY ON TEST:</b> 95 |
|                         | <b>DOSE:</b> 10 mg/m3 | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b> 53165    |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Mediastinal | * Lymph Node, Mesenteric    | * Pancreas               | * Parathyroid Gland        |
| * Pituitary Gland         | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Spleen                 | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Thymus                    | * Thyroid Gland          | * Urinary Bladder          |

MISSING

- |                         |                 |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- |              |                             |                           |                          |
|--------------|-----------------------------|---------------------------|--------------------------|
| * Epididymis |                             | Hypospermia               | Mild                     |
| * Larynx     |                             | Metaplasia                | Squamous, Mild           |
| * Lung       | Bronchiole, Epithelium      | Hyperplasia               | Moderate                 |
|              | Alveolus                    | Infiltration Cellular     | Histiocyte, Moderate     |
|              | Alv Bron, Epithelium        | Karyomegaly               | Moderate                 |
|              | Alveolus                    | Proteinosis               | Mild                     |
|              | Bronchiole, Epithelium      | Vacuolization Cytoplasmic | Marked                   |
|              | [ Hyperplasia TGLs = 2-4 ]  |                           |                          |
| * Nose       | Turbinate                   | Atrophy                   | Moderate                 |
|              | Olfactory Epi               | Degeneration              | Moderate                 |
|              | Respirat Epith              | Degeneration              | Mild                     |
|              | Olfactory Epi               | Hyperplasia               | Minimal                  |
|              |                             | Inflammation              | Chronic Active, Moderate |
|              | Respirat Epith              | Metaplasia                | Squamous, Mild           |
| * Testes     | Germinal Epith              | Degeneration              | Moderate                 |
|              | [ Degeneration TGLs = 1-8 ] |                           |                          |
| * Trachea    |                             | Erosion                   | Minimal                  |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 101 TMT: 2 DOSE: control

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 96 HISTO: 53146

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Mammary Gland
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland

- \* Adrenal Medulla
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Bronchial
- \* Nose
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

- \* Bone
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mandibular
- \* Ovary
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Skin
- \* Thymus

MISSING

- \* Clitoral Gland
- \* Lymph Node, Mediastinal

OBSERVATIONS

\* Uterus Endometrium Inflammation Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 102 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53147

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Nose
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

- \* Adrenal Medulla
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mandibular
- \* Ovary
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Bone
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Skin
- \* Thymus
- \* Uterus

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Mammary Gland
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland

MISSING

- \* Clitoral Gland

- \* Lymph Node, Bronchial

- \* Lymph Node, Mediastinal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 103 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53148

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow            |
| * Brain                    | * Clitoral Gland          | * Esophagus                 | * Eye                    |
| * Gallbladder              | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Larynx                    | * Liver                  |
| * Lung                     | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          |
| * Nose                     | * Ovary                   | * Pancreas                  | * Parathyroid Gland      |
| * Pituitary Gland          | * Salivary Glands         | * Skin                      | * Spleen                 |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Thymus                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         | * Uterus                    |                          |

MISSING

|                         |                           |
|-------------------------|---------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
|-------------------------|---------------------------|

OBSERVATIONS

|          |             |         |
|----------|-------------|---------|
| * Kidney | Nephropathy | Minimal |
|----------|-------------|---------|



TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 104 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53149

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | Blood Vessel              | * Bone                      |
| * Bone Marrow            | * Brain                    | * Clitoral Gland          | * Esophagus                 |
| * Eye                    | * Gallbladder              | * Harderian Gland         | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Larynx                 | * Lung                     | * Lymph Node, Bronchial   | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Nose                    | * Ovary                     |
| * Pancreas               | * Parathyroid Gland        | * Pituitary Gland         | * Salivary Glands           |
| * Skin                   | * Spleen                   | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Thymus                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |
| * Uterus                 |                            |                           |                             |

MISSING

- \* Lymph Node, Mediastinal

OBSERVATIONS

- |         |              |                         |
|---------|--------------|-------------------------|
| * Liver | Inflammation | Chronic Active, Minimal |
|---------|--------------|-------------------------|

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 105 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53150

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow            |
| * Brain                    | * Clitoral Gland          | * Esophagus                 | * Eye                    |
| * Gallbladder              | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    | * Larynx                 |
| * Liver                    | * Lung                    | * Lymph Node, Bronchial     | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Nose                    | * Ovary                     | * Pancreas               |
| * Parathyroid Gland        | * Pituitary Gland         | * Salivary Glands           | * Skin                   |
| * Spleen                   | * Stomach, Forestomach    | * Stomach, Glandular        | * Thymus                 |
| * Thyroid Gland            | * Trachea                 | * Urinary Bladder           | * Uterus                 |

MISSING

- |                          |                           |
|--------------------------|---------------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
|--------------------------|---------------------------|

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 106 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53151

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Nose
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Adrenal Medulla
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Bronchial
- \* Ovary
- \* Skin
- \* Thymus
- \* Uterus
- \* Bone
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Spleen
- \* Thyroid Gland
- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Mammary Gland
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

MISSING

- \* Clitoral Gland
- \* Lymph Node, Mandibular
- \* Lymph Node, Mediastinal
- \* Parathyroid Gland

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 107 TMT: 2 DOSE: control

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 96 HISTO: 53152

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Skin
- \* Thymus
- \* Uterus
- \* Adrenal Medulla
- \* Clitoral Gland
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Mammary Gland
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Bronchial
- \* Nose
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mandibular
- \* Ovary
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

MISSING

- \* Lymph Node, Mediastinal

OBSERVATIONS

Pleura Infiltration Cellular Mixed Cell, Focal, Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 108 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53153

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Mammary Gland
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland

- \* Adrenal Medulla
- \* Clitoral Gland
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Nose
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mandibular
- \* Ovary
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Skin
- \* Thymus
- \* Uterus

MISSING

- \* Lymph Node, Bronchial
- \* Lymph Node, Mediastinal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 109 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53154

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Spleen
- \* Thyroid Gland
- \* Adrenal Medulla
- \* Clitoral Gland
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Mammary Gland
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Bronchial
- \* Nose
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mandibular
- \* Ovary
- \* Skin
- \* Thymus
- \* Uterus

MISSING

- \* Lymph Node, Mediastinal
- \* Parathyroid Gland

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 110 TMT: 2  
DOSE: control

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53155

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                            |                           |                             |                           |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow             |
| * Brain                    | * Clitoral Gland          | * Esophagus                 | * Eye                     |
| * Gallbladder              | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum  |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum  |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    | * Larynx                  |
| * Liver                    | * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Nose                      | * Ovary                   |
| * Pancreas                 | * Parathyroid Gland       | * Pituitary Gland           | * Salivary Glands         |
| * Skin                     | * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular      |
| * Thymus                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder         |
| * Uterus                   |                           |                             |                           |

MISSING

\* Lymph Node, Bronchial

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 301    TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53246

---

**OBSERVATIONS**

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 302 TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53247

---

ORGAN AND ACCOUNTABLE SITE STATUS

---

NORMAL

\* Nose

---

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

**ANIMAL NUM:** 303    **TMT:** 4  
**DOSE:** 0.625 mg/m3

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 96  
**HISTO:** 53248

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

\* Nose

---

**OBSERVATIONS**

\* Larynx

Metaplasia

Squamous, Mild

\* Lung

Alveolus  
Bronchiole, Epithelium

Infiltration Cellular  
Vacuolization Cytoplasmic

Histiocyte, Minimal  
Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 304    TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53249

---

ORGAN AND ACCOUNTABLE SITE STATUS

---

NORMAL

\* Nose

---

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Minimal              |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

**ANIMAL NUM:** 305    **TMT:** 4  
**DOSE:** 0.625 mg/m3

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 96  
**HISTO:** 53250

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

\* Nose

---

**OBSERVATIONS**

\* Larynx

Metaplasia

Squamous, Minimal

\* Lung

Alveolus  
Bronchiole, Epithelium

Infiltration Cellular  
Vacuolization Cytoplasmic

Histiocyte, Minimal  
Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 306    TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53251

---

ORGAN AND ACCOUNTABLE SITE STATUS

---

NORMAL

\* Nose

---

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 307 TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53252

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

**ANIMAL NUM:** 308    **TMT:** 4  
**DOSE:** 0.625 mg/m3

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 96  
**HISTO:** 53253

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

\* Nose

---

**OBSERVATIONS**

\* Larynx

Metaplasia

Squamous, Minimal

\* Lung

Alveolus  
Bronchiole, Epithelium

Infiltration Cellular  
Vacuolization Cytoplasmic

Histiocyte, Minimal  
Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 309    TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53254

---

ORGAN AND ACCOUNTABLE SITE STATUS

---

NORMAL

\* Nose

---

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 310 TMT: 4  
DOSE: 0.625 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53255

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Nose

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

**ANIMAL NUM:** 501    **TMT:** 6  
**DOSE:** 1.25 mg/m3

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 96  
**HISTO:** 53226

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

**NORMAL**

\* Nose

---

**OBSERVATIONS**

\* Larynx

Metaplasia

Squamous, Mild

\* Lung

Alveolus  
Bronchiole, Epithelium

Infiltration Cellular  
Vacuolization Cytoplasmic

Histiocyte, Minimal  
Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 502 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53227

---

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Minimal              |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 503 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53228

---

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 504 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53229

---

**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 505 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53230

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 506 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53231

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ORGAN AND ACCOUNTABLE SITE STATUS

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NORMAL

\* Nose

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OBSERVATIONS

\* Larynx

Metaplasia

Squamous, Minimal

\* Lung

Alveolus  
Bronchiole, Epithelium

Infiltration Cellular  
Vacuolization Cytoplasmic

Histiocyte, Minimal  
Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

---

ANIMAL NUM: 507    TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53232

---

ORGAN AND ACCOUNTABLE SITE STATUS

---

NORMAL

\* Nose

---

OBSERVATIONS

\* Larynx

Metaplasia

Squamous, Mild

\* Lung

Alveolus  
Bronchiole, Epithelium

Infiltration Cellular  
Vacuolization Cytoplasmic

Histiocyte, Minimal  
Minimal



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 508 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53233

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**OBSERVATIONS**

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Minimal              |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 509    TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53234

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**OBSERVATIONS**

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Minimal              |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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ANIMAL NUM: 510 TMT: 6  
DOSE: 1.25 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53235

---

OBSERVATIONS

|          |                                    |  |                                |
|----------|------------------------------------|--|--------------------------------|
| * Larynx |                                    | Metaplasia   | Squamous, Mild                 |
| * Lung   | Alveolus<br>Bronchiole, Epithelium | Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Minimal<br>Minimal |
| * Nose   | Olfactory Epi                      | Degeneration                                       | Minimal                        |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 701 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53206 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 702 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53207 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 703 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53208 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 704 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53209 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Olfactory Epi          | Hyperplasia               | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 705 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53210 |

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**OBSERVATIONS**

|          |                        |                           |                         |
|----------|------------------------|---------------------------|-------------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild          |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal                 |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal     |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                    |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal                 |
|          | Respirat Epith         | Degeneration              | Minimal                 |
|          |                        | Inflammation              | Chronic Active, Minimal |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal       |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 706 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53211 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 707 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53212 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Mild      |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 708 TMT: 8  
DOSE: 2.5 mg/m3

SEX: Female  
DISP: Accidentally Killed

DAY ON TEST: 4  
HISTO: 53213

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

|                          |                         |                           |                        |
|--------------------------|-------------------------|---------------------------|------------------------|
| Adrenal Cortex           | Adrenal Medulla         | Bone                      | Bone Marrow            |
| Brain                    | Clitoral Gland          | Esophagus                 | Eye                    |
| Gallbladder              | 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, Bronchial    | Lymph Node, Mandibular  | Lymph Node, Mesenteric    | Mammary Gland          |
| Ovary                    | Pancreas                | Parathyroid Gland         | Pituitary Gland        |
| Salivary Glands          | Skin                    | Spleen                    | Stomach, Forestomach   |
| Stomach, Glandular       | Thymus                  | Thyroid Gland             | Trachea                |
| Urinary Bladder          | Uterus                  |                           |                        |

MISSING

Lymph Node, Mediastinal

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Arteriole              | Thrombosis                | Minimal             |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 709 TMT: 8  
DOSE: 2.5 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53214

OBSERVATIONS

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |
|          | Respirat Epith         | Metaplasia                | Squamous, Minimal   |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |           |              |                    |                     |       |
|--------------------|-----|--------------|-----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 710 | <b>TMT:</b>  | 8         | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 2.5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53215 |

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**OBSERVATIONS**

|          |                        |                           |                     |
|----------|------------------------|---------------------------|---------------------|
| * Larynx |                        | Metaplasia                | Squamous, Minimal   |
| * Lung   | Bronchiole, Epithelium | Hyperplasia               | Minimal             |
|          | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal |
|          | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Minimal             |
| * Nose   | Olfactory Epi          | Degeneration              | Minimal             |
|          | Respirat Epith         | Degeneration              | Minimal             |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 901 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53186 |

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**OBSERVATIONS**

|          |               |                        |                           |                          |
|----------|---------------|------------------------|---------------------------|--------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Minimal        |
| * Lung   |               | Bronchiole, Epithelium | Hyperplasia               | Mild                     |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild         |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Moderate                 |
|          |               | Alveolus               | Proteinosis               | Minimal                  |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                     |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                          |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                     |
|          |               | Olfactory Epi          | Degeneration              | Moderate                 |
|          |               | Respirat Epith         | Degeneration              | Mild                     |
|          |               |                        | Inflammation              | Chronic Active, Moderate |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 902 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53187 |

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**OBSERVATIONS**

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                 |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild     |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal              |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinate              | Atrophy                   | Moderate             |
|          |               | Olfactory Epi          | Degeneration              | Mild                 |
|          |               | Respirat Epith         | Degeneration              | Mild                 |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 903 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53188 |

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**OBSERVATIONS**

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                 |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Moderate |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Moderate             |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinate              | Atrophy                   | Moderate             |
|          |               | Olfactory Epi          | Degeneration              | Moderate             |
|          |               | Respirat Epith         | Degeneration              | Minimal              |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild       |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 904 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53189 |

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**OBSERVATIONS**

|          |               |                        |                           |                          |
|----------|---------------|------------------------|---------------------------|--------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Minimal        |
| * Lung   |               |                        | Hemorrhage                | Minimal                  |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                     |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Minimal      |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal                  |
|          |               | Alveolus               | Proteinosis               | Minimal                  |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate                 |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                          |
| * Nose   |               | Turbinate              | Atrophy                   | Moderate                 |
|          |               | Olfactory Epi          | Degeneration              | Moderate                 |
|          |               | Respirat Epith         | Degeneration              | Mild                     |
|          |               |                        | Inflammation              | Chronic Active, Moderate |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 905 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53190 |

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**OBSERVATIONS**

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Minimal              |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild     |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal              |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinates             | Atrophy                   | Moderate             |
|          |               | Olfactory Epi          | Degeneration              | Mild                 |
|          |               | Respirat Epith         | Degeneration              | Mild                 |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 906 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53191 |

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**OBSERVATIONS**

|          |               |                        |                           |                          |
|----------|---------------|------------------------|---------------------------|--------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild           |
| * Lung   |               | Bronchiole, Epithelium | Hyperplasia               | Mild                     |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild         |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal                  |
|          |               | Alveolus               | Proteinosis               | Minimal                  |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                     |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                          |
| * Nose   |               | Turbinate              | Atrophy                   | Minimal                  |
|          |               | Olfactory Epi          | Degeneration              | Moderate                 |
|          |               | Respirat Epith         | Degeneration              | Mild                     |
|          |               |                        | Inflammation              | Chronic Active, Moderate |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 907 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53192 |

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**OBSERVATIONS**

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                 |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Moderate |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Mild                 |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate             |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinate              | Atrophy                   | Minimal              |
|          |               | Olfactory Epi          | Degeneration              | Moderate             |
|          |               | Respirat Epith         | Degeneration              | Mild                 |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 908 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53193 |

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**OBSERVATIONS**

|          |               |                        |                           |                      |
|----------|---------------|------------------------|---------------------------|----------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild       |
| * Lung   |               |                        | Hemorrhage                | Minimal              |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                 |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild     |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Minimal              |
|          |               | Alveolus               | Proteinosis               | Minimal              |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                 |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                      |
| * Nose   |               | Turbinates             | Atrophy                   | Moderate             |
|          |               | Olfactory Epi          | Degeneration              | Mild                 |
|          |               | Respirat Epith         | Degeneration              | Mild                 |
|          |               |                        | Inflammation              | Chronic Active, Mild |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 909 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53194 |

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**OBSERVATIONS**

|          |               |                        |                           |                          |
|----------|---------------|------------------------|---------------------------|--------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild           |
| * Lung   |               |                        | Hemorrhage                | Minimal                  |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                     |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild         |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Mild                     |
|          |               | Alveolus               | Proteinosis               | Minimal                  |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Mild                     |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                          |
| * Nose   |               | Turbinate              | Atrophy                   | Minimal                  |
|          |               | Olfactory Epi          | Degeneration              | Mild                     |
|          |               | Respirat Epith         | Degeneration              | Mild                     |
|          |               |                        | Inflammation              | Chronic Active, Moderate |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

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|                    |     |              |         |              |                    |                     |       |
|--------------------|-----|--------------|---------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 910 | <b>TMT:</b>  | 10      | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |     | <b>DOSE:</b> | 5 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53195 |

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**OBSERVATIONS**

|          |               |                        |                           |                          |
|----------|---------------|------------------------|---------------------------|--------------------------|
| * Larynx |               |                        | Metaplasia                | Squamous, Mild           |
| * Lung   |               |                        | Hemorrhage                | Minimal                  |
|          |               | Bronchiole, Epithelium | Hyperplasia               | Mild                     |
|          |               | Alveolus               | Infiltration Cellular     | Histiocyte, Mild         |
|          |               | Alv Bron, Epithelium   | Karyomegaly               | Mild                     |
|          |               | Alveolus               | Proteinosis               | Minimal                  |
|          |               | Bronchiole, Epithelium | Vacuolization Cytoplasmic | Moderate                 |
|          | [ Hyperplasia | TGLs = 1-4 ]           |                           |                          |
| * Nose   |               | Turbinate              | Atrophy                   | Mild                     |
|          |               | Olfactory Epi          | Degeneration              | Mild                     |
|          |               | Respirat Epith         | Degeneration              | Mild                     |
|          |               |                        | Inflammation              | Chronic Active, Moderate |
|          |               | Respirat Epith         | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1101 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53166

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow            |
| * Brain                    | * Clitoral Gland          | * Esophagus                 | * Eye                    |
| * Gallbladder              | * 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, Bronchial    | * Lymph Node, Mandibular  | * Lymph Node, Mediastinal   | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Ovary                   | * Pancreas                  | * Pituitary Gland        |
| * Salivary Glands          | * Skin                    | * Spleen                    | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Thymus                  | * Thyroid Gland             | * Trachea                |
| * Urinary Bladder          | * Uterus                  |                             |                          |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |          |                            |                           |                      |
|----------|----------------------------|---------------------------|----------------------|
| * Larynx |                            | Metaplasia                | Squamous, Moderate   |
| * Lung   |                            | Emphysema                 | Minimal              |
|          | Bronchiole, Epithelium     | Hyperplasia               | Moderate             |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate |
|          | Alv Bron, Epithelium       | Karyomegaly               | Moderate             |
|          | Alveolus                   | Proteinosis               | Minimal              |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Marked               |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                      |
| * Nose   | Turbinate                  | Atrophy                   | Mild                 |
|          | Olfactory Epi              | Degeneration              | Moderate             |
|          | Respirat Epith             | Degeneration              | Mild                 |
|          |                            | Inflammation              | Chronic Active, Mild |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild       |



TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 1102 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53167

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Gallbladder
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Liver
- \* Lymph Node, Mandibular
- \* Ovary
- \* Pancreas
- \* Salivary Glands
- \* Skin
- \* Stomach, Glandular
- \* Thymus
- \* Urinary Bladder
- \* Blood Vessel
- \* Clitoral Gland
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Mammary Gland
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

MISSING

- \* Lymph Node, Bronchial
- \* Lymph Node, Mediastinal

OBSERVATIONS

- \* Larynx
  - \* Lung
    - Bronchiole, Epithelium
    - Alveolus
    - Alv Bron, Epithelium
    - Alveolus
    - Bronchiole, Epithelium
    - [ Hyperplasia TGLs = 1-4 ]
  - \* Nose
    - Turbinate
    - Olfactory Epi
    - Respirat Epith
    - Respirat Epith
  - \* Uterus
    - Endometrium
- Metaplasia
- Hyperplasia
- Infiltration Cellular
- Karyomegaly
- Proteinosis
- Vacuolization Cytoplasmic
- Squamous, Moderate
- Moderate
- Histiocyte, Moderate
- Moderate
- Mild
- Marked
- Moderate
- Mild
- Minimal
- Chronic Active, Moderate
- Squamous, Mild
- Minimal

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                         |                       |                                 |                        |
|-------------------------|-----------------------|---------------------------------|------------------------|
| <b>ANIMAL NUM:</b> 1103 | <b>TMT:</b> 12        | <b>SEX:</b> Female              | <b>DAY ON TEST:</b> 96 |
|                         | <b>DOSE:</b> 10 mg/m3 | <b>DISP:</b> Terminal Sacrifice | <b>HISTO:</b> 53168    |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Bronchial  | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Ovary                     | * Pancreas               | * Pituitary Gland          |
| * Salivary Glands         | * Skin                      | * Spleen                 | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Thymus                    | * Urinary Bladder        | * Uterus                   |

MISSING

- |                  |                          |                           |                     |
|------------------|--------------------------|---------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Parathyroid Gland |
| * Thyroid Gland  |                          |                           |                     |

INSUFFICIENT TISSUE

- \* Trachea

OBSERVATIONS

- |          |                            |                           |                      |
|----------|----------------------------|---------------------------|----------------------|
| * Kidney |                            | Nephropathy               | Minimal              |
| * Larynx |                            | Metaplasia                | Squamous, Mild       |
| * Lung   |                            | Hemorrhage                | Minimal              |
|          | Bronchiole, Epithelium     | Hyperplasia               | Moderate             |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate |
|          | Alv Bron, Epithelium       | Karyomegaly               | Moderate             |
|          | Alveolus                   | Proteinosis               | Mild                 |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Marked               |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                      |
| * Nose   | Turbinates                 | Atrophy                   | Moderate             |
|          | Olfactory Epi              | Degeneration              | Moderate             |
|          | Respirat Epith             | Degeneration              | Mild                 |
|          |                            | Inflammation              | Chronic Active, Mild |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild       |

\* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 1104 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53169

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Skin
- \* Thymus
- \* Uterus
- \* Adrenal Medulla
- \* Clitoral Gland
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Mammary Gland
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Liver
- \* Ovary
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

MISSING

- \* Lymph Node, Bronchial
- \* Lymph Node, Mediastinal

OBSERVATIONS

- \* Larynx
  - \* Lung
    - Bronchiole, Epithelium
    - Alveolus
    - Alv Bron, Epithelium
    - Alveolus
    - Bronchiole, Epithelium
  - \* Nose
    - Turbinate
    - Olfactory Epi
    - Respirat Epith
    - Respirat Epith
- [ Hyperplasia TGLs = 1-4 ]
- Metaplasia
  - Hyperplasia
  - Infiltration Cellular
  - Karyomegaly
  - Proteinosis
  - Vacuolization Cytoplasmic
  - Atrophy
  - Degeneration
  - Degeneration
  - Inflammation
  - Metaplasia
- Squamous, Mild
  - Moderate
  - Histiocyte, Moderate
  - Moderate
  - Mild
  - Marked
  - Moderate
  - Moderate
  - Mild
  - Chronic Active, Moderate
  - Squamous, Mild

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1105 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53170

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Clitoral Gland            | * Esophagus              | * Eye                      |
| * Gallbladder             | * 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, Bronchial    |
| * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          | * Ovary                    |
| * Pancreas                | * Pituitary Gland           | * Salivary Glands        | * Skin                     |
| * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular     | * Thymus                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        | * Uterus                   |

MISSING

- |                           |                     |
|---------------------------|---------------------|
| * Lymph Node, Mediastinal | * Parathyroid Gland |
|---------------------------|---------------------|

OBSERVATIONS

- |                   |                            |                           |                          |
|-------------------|----------------------------|---------------------------|--------------------------|
| * Harderian Gland |                            | Hemorrhage                | Minimal                  |
| * Larynx          |                            | Metaplasia                | Squamous, Mild           |
| * Lung            | Bronchiole, Epithelium     | Hyperplasia               | Moderate                 |
|                   | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate     |
|                   | Alv Bron, Epithelium       | Karyomegaly               | Moderate                 |
|                   | Alveolus                   | Proteinosis               | Minimal                  |
|                   | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Marked                   |
|                   | [ Hyperplasia TGLs = 1-4 ] |                           |                          |
| * Nose            | Turbinate                  | Atrophy                   | Moderate                 |
|                   | Olfactory Epi              | Degeneration              | Moderate                 |
|                   | Respirat Epith             | Degeneration              | Mild                     |
|                   |                            | Inflammation              | Chronic Active, Moderate |
|                   | Respirat Epith             | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1106 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53171

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Bronchial  | * Lymph Node, Mandibular   |
| * Lymph Node, Mesenteric  | * Mammary Gland             | * Ovary                  | * Pancreas                 |
| * Parathyroid Gland       | * Pituitary Gland           | * Salivary Glands        | * Skin                     |
| * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular     | * Thymus                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        | * Uterus                   |

MISSING

- |                  |                           |
|------------------|---------------------------|
| * Clitoral Gland | * Lymph Node, Mediastinal |
|------------------|---------------------------|

OBSERVATIONS

- |          |                            |                           |                      |
|----------|----------------------------|---------------------------|----------------------|
| * Kidney |                            | Nephropathy               | Minimal              |
| * Larynx |                            | Metaplasia                | Squamous, Mild       |
| * Lung   | Bronchiole, Epithelium     | Hyperplasia               | Moderate             |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate |
|          | Alv Bron, Epithelium       | Karyomegaly               | Moderate             |
|          | Alveolus                   | Proteinosis               | Mild                 |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Marked               |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                      |
| * Nose   | Turbinate                  | Atrophy                   | Moderate             |
|          | Olfactory Epi              | Degeneration              | Moderate             |
|          | Respirat Epith             | Degeneration              | Mild                 |
|          |                            | Inflammation              | Chronic Active, Mild |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild       |

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 1107 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53172

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Gallbladder
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Bronchial
- \* Ovary
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Adrenal Medulla
- \* Clitoral Gland
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mediastinal
- \* Pancreas
- \* Skin
- \* Thymus
- \* Uterus
- \* Bone
- \* Esophagus
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Spleen
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Liver
- \* Mammary Gland
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

MISSING

- \* Lymph Node, Mandibular

OBSERVATIONS

- \* Larynx
  - \* Lung
    - Bronchiole, Epithelium
    - Alveolus
    - Alv Bron, Epithelium
    - Alveolus
    - Bronchiole, Epithelium
  - \* Nose
    - Turbinate
    - Olfactory Epi
    - Respirat Epith
    - Respirat Epith
- [ Hyperplasia TGLs = 1-4 ]
- Metaplasia
  - Hyperplasia
  - Infiltration Cellular
  - Karyomegaly
  - Proteinosis
  - Vacuolization Cytoplasmic
  - Atrophy
  - Degeneration
  - Degeneration
  - Inflammation
  - Metaplasia
- Squamous, Mild
  - Moderate
  - Histiocyte, Moderate
  - Moderate
  - Mild
  - Marked
  - Moderate
  - Moderate
  - Mild
  - Chronic Active, Mild
  - Squamous, Mild

TDMS No. 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:56:10

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                    |      |              |          |              |                    |                     |       |
|--------------------|------|--------------|----------|--------------|--------------------|---------------------|-------|
| <b>ANIMAL NUM:</b> | 1108 | <b>TMT:</b>  | 12       | <b>SEX:</b>  | Female             | <b>DAY ON TEST:</b> | 96    |
|                    |      | <b>DOSE:</b> | 10 mg/m3 | <b>DISP:</b> | Terminal Sacrifice | <b>HISTO:</b>       | 53173 |

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Esophagus                 | * Eye                    | * Gallbladder              |
| * 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, Bronchial    |
| * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          | * Ovary                    |
| * Pancreas                | * Pituitary Gland           | * Salivary Glands        | * Skin                     |
| * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular     | * Thymus                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        | * Uterus                   |

MISSING

- |                  |                           |                     |
|------------------|---------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Mediastinal | * Parathyroid Gland |
|------------------|---------------------------|---------------------|

OBSERVATIONS

- |          |                            |                           |                          |
|----------|----------------------------|---------------------------|--------------------------|
| * Larynx |                            | Metaplasia                | Squamous, Mild           |
| * Lung   |                            | Emphysema                 | Mild                     |
|          | Bronchiole, Epithelium     | Hyperplasia               | Moderate                 |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate     |
|          | Alv Bron, Epithelium       | Karyomegaly               | Moderate                 |
|          | Alveolus                   | Proteinosis               | Mild                     |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Moderate                 |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                          |
| * Nose   | Turbinat                   | Atrophy                   | Moderate                 |
|          | Olfactory Epi              | Degeneration              | Moderate                 |
|          | Respirat Epith             | Degeneration              | Mild                     |
|          |                            | Inflammation              | Chronic Active, Moderate |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild           |

TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1109 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53174

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow            |
| * Brain                    | * Clitoral Gland          | * Esophagus                 | * Eye                    |
| * Gallbladder              | * 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, Bronchial    | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric    | * Mammary Gland          |
| * Ovary                    | * Pancreas                | * Parathyroid Gland         | * Pituitary Gland        |
| * Salivary Glands          | * Skin                    | * Spleen                    | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Thymus                  | * Thyroid Gland             | * Trachea                |
| * Urinary Bladder          | * Uterus                  |                             |                          |

MISSING

- \* Lymph Node, Mandibular

OBSERVATIONS

- |          |                            |                           |                      |
|----------|----------------------------|---------------------------|----------------------|
| * Larynx |                            | Metaplasia                | Squamous, Mild       |
| * Lung   |                            | Hemorrhage                | Minimal              |
|          | Bronchiole, Epithelium     | Hyperplasia               | Moderate             |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate |
|          | Alv Bron, Epithelium       | Karyomegaly               | Moderate             |
|          | Alveolus                   | Proteinosis               | Mild                 |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Marked               |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                      |
| * Nose   | Turbinate                  | Atrophy                   | Moderate             |
|          | Olfactory Epi              | Degeneration              | Moderate             |
|          | Respirat Epith             | Degeneration              | Mild                 |
|          |                            | Inflammation              | Chronic Active, Mild |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild       |



TDMS No. 60311 - 04

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:56:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/07/05 / 03/07/05

Species/Strain: MICE/B6C3F1

Lab: BNW

ANIMAL NUM: 1110 TMT: 12  
DOSE: 10 mg/m3

SEX: Female  
DISP: Terminal Sacrifice

DAY ON TEST: 96  
HISTO: 53175

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Bone Marrow            |
| * Brain                    | * Clitoral Gland          | * Esophagus                 | * Eye                    |
| * Gallbladder              | * 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, Mediastinal | * Lymph Node, Mesenteric    | * Mammary Gland          |
| * Ovary                    | * Pancreas                | * Parathyroid Gland         | * Pituitary Gland        |
| * Salivary Glands          | * Skin                    | * Spleen                    | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Thymus                  | * Thyroid Gland             | * Trachea                |
| * Urinary Bladder          | * Uterus                  |                             |                          |

INSUFFICIENT TISSUE

- \* Lymph Node, Bronchial

OBSERVATIONS

- |          |                            |                           |                      |
|----------|----------------------------|---------------------------|----------------------|
| * Larynx |                            | Metaplasia                | Squamous, Mild       |
| * Lung   |                            | Emphysema                 | Moderate             |
|          | Bronchiole, Epithelium     | Hyperplasia               | Moderate             |
|          | Alveolus                   | Infiltration Cellular     | Histiocyte, Moderate |
|          | Alv Bron, Epithelium       | Karyomegaly               | Moderate             |
|          | Alveolus                   | Proteinosis               | Mild                 |
|          | Bronchiole, Epithelium     | Vacuolization Cytoplasmic | Marked               |
|          | [ Hyperplasia TGLs = 1-4 ] |                           |                      |
| * Nose   | Turbinate                  | Atrophy                   | Moderate             |
|          | Olfactory Epi              | Degeneration              | Moderate             |
|          | Respirat Epith             | Degeneration              | Mild                 |
|          |                            | Inflammation              | Chronic Active, Mild |
|          | Respirat Epith             | Metaplasia                | Squamous, Mild       |

\*\*\* END OF REPORT \*\*\*