

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 801 TMT: 9 DOSE: 5.0 MG/M3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53056

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Parathyroid Gland

OBSERVATIONS

- * Lung
 - Alveolus Hemorrhage Minimal
 - Bronchiole, Epithelium Hyperplasia Mild
 - Inflammation Chronic Active, Mild
 - Proteinosis Moderate
- * Nose
 - Turbinate Atrophy Minimal
 - Olfactory Epi Degeneration Mild
 - Respirat Epith Hyperplasia Mild
 - Olfactory Epi Hyperplasia Minimal

TDMS No. 60311 - 03

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Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 802 TMT: 9
DOSE: 5.0 MG/M3

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53057

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Liver | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * 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, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|-------------------------------|----------------|--------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | Bronchiole, Epithelium | Hyperplasia | Mild |
| | Alveolus | Inflammation | Chronic Active, Moderate |
| | [Inflammation TGLs = 1-4+5] | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Degeneration | Mild |
| | Respirat Epith | Hyperplasia | Mild |
| | Olfactory Epi | Hyperplasia | Mild |

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 803 TMT: 9 DOSE: 5.0 MG/M3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53058

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Lung
 - Bronchiole, Epithelium Hyperplasia
 - Alveolus Inflammation
 - Turbinate Proteinosis
 - Olfactory Epi Atrophy
 - Respirat Epith Degeneration
 - Olfactory Epi Hyperplasia
- * Nose
 - Hyperplasia
 - Mild
 - Chronic Active, Mild
 - Moderate
 - Minimal
 - Moderate
 - Mild
 - Minimal

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 805 TMT: 9 DOSE: 5.0 MG/M3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53060

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Parathyroid Gland

OBSERVATIONS

- * Heart
- * Lung
- * Nose
- Alveolar Epith
- Bronchiole, Epithelium
- Alveolus
- Turbinate
- Olfactory Epi
- Respirat Epith
- Olfactory Epi
- Cardiomyopathy
- Hyperplasia
- Hyperplasia
- Inflammation
- Proteinosis
- Atrophy
- Degeneration
- Hyperplasia
- Hyperplasia
- Minimal
- Mild
- Mild
- Chronic Active, Moderate
- Moderate
- Minimal
- Moderate
- Mild
- Mild

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 806 TMT: 9 DOSE: 5.0 MG/M3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53061

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Lung
 - Alveolus Hemorrhage Minimal
 - Bronchiole, Epithelium Hyperplasia Mild
 - Inflammation Chronic Active, Mild
 - Proteinosis Mild
- * Nose
 - Turbinate Atrophy Minimal
 - Olfactory Epi Degeneration Moderate
 - Respirat Epith Hyperplasia Minimal
 - Olfactory Epi Hyperplasia Mild

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Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 807 TMT: 9
DOSE: 5.0 MG/M3

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53062

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

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

OBSERVATIONS

- | | | | |
|-------------------|------------------------|-----------------------------|------------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Lung | Bronchiole, Epithelium | Hyperplasia
Inflammation | Mild
Chronic Active, Mild |
| | Alveolus | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Degeneration | Mild |
| | Respirat Epith | Hyperplasia | Mild |
| | Olfactory Epi | Hyperplasia | Minimal |
| | Respirat Epith | Metaplasia | Squamous, Minimal |
| * Salivary Glands | | Inflammation | Acute, Mild |

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Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 808 TMT: 9 DOSE: 5.0 MG/M3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53063

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------|------------------------|----------------|--------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Lung | Alveolus | Hemorrhage | Minimal |
| | Bronchiole, Epithelium | Hyperplasia | Moderate |
| | | Inflammation | Chronic Active, Moderate |
| | Alveolus | Proteinosis | Moderate |
| * Nose | Olfactory Epi | Degeneration | Moderate |
| | Respirat Epith | Hyperplasia | Mild |
| | Olfactory Epi | Hyperplasia | Mild |

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 809 TMT: 9
DOSE: 5.0 MG/M3

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53064

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

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

OBSERVATIONS

- | | | | |
|---------|------------------------|----------------|--------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Lung | Bronchiole, Epithelium | Hyperplasia | Mild |
| | | Inflammation | Chronic Active, Moderate |
| | Alveolus | Proteinosis | Mild |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Degeneration | Mild |
| | Respirat Epith | Hyperplasia | Mild |
| | Olfactory Epi | Hyperplasia | Mild |

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 810 TMT: 9 DOSE: 5.0 MG/M3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53065

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
- * Trachea
- * Adrenal Medulla
- * Epididymis
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Larynx
- * Pancreas
- * Prostate
- * Spleen
- * Thymus
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Liver
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

MISSING

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

OBSERVATIONS

- * Lung
 - Alveolus Hemorrhage Minimal
 - Alveolar Epith Hyperplasia Minimal
 - Bronchiole, Epithelium Hyperplasia Moderate
 - Inflammation Chronic Active, Mild
 - Proteinosis Moderate
- Lymph Node
 - Alveolus Pigmentation Mild
 - Pancreatic
- [Pigmentation TGLs = 1-7]
- * Nose
 - Turbinate Atrophy Minimal
 - Olfactory Epi Degeneration Mild
 - Respirat Epith Hyperplasia Minimal
 - Olfactory Epi Hyperplasia Mild

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 101 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53046

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Larynx | * Liver | * Lung |
| * 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 | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

* Heart	Cardiomyopathy	Minimal
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TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 103 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53048

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex
* Brain
* Harderian Gland
* Intestine Large, Rectum
* Islets, Pancreatic
* Lung
* Ovary
* Salivary Glands
* Stomach, Glandular
* Urinary Bladder

* Adrenal Medulla
* Clitoral Gland
* Heart
* Intestine Small, Duodenum
* Kidney
* Lymph Node, Mesenteric
* Pancreas
* Skin
* Thymus
* Uterus

* Bone
* Esophagus
* Intestine Large, Cecum
* Intestine Small, Ileum
* Larynx
* Mammary Gland
* Parathyroid Gland
* Spleen
* Thyroid Gland

* Bone Marrow
* Eye
* Intestine Large, Colon
* Intestine Small, Jejunum
* Liver
* Nose
* Pituitary Gland
* Stomach, Forestomach
* Trachea

MISSING

* Lymph Node, Bronchial

* Lymph Node, Mandibular

* Lymph Node, Mediastinal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 104 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53049

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
* Clitoral Gland
* Heart
* Intestine Small, Duodenum
* Kidney
* Lymph Node, Mediastinal
* Ovary
* Skin
* Thymus
* Uterus

* Bone
* Esophagus
* Intestine Large, Cecum
* Intestine Small, Ileum
* Larynx
* Lymph Node, Mesenteric
* Pancreas
* Spleen
* Thyroid Gland

* Bone Marrow
* Eye
* Intestine Large, Colon
* Intestine Small, Jejunum
* Liver
* Mammary Gland
* Pituitary Gland
* Stomach, Forestomach
* Trachea

MISSING

* Lymph Node, Bronchial

* Lymph Node, Mandibular

* Parathyroid Gland

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 105 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53050

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
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mediastinal
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Larynx
- * Lymph Node, Mesenteric
- * Pancreas
- * Skin
- * Thymus
- * Uterus
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Liver
- * Mammary Gland
- * Parathyroid Gland
- * Spleen
- * Thyroid Gland

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 106 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53051

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
* Clitoral Gland
* Heart
* Intestine Small, Duodenum
* Kidney
* Lymph Node, Mediastinal
* Ovary
* Skin
* Thymus
* Uterus

* Bone
* Esophagus
* Intestine Large, Cecum
* Intestine Small, Ileum
* Larynx
* Lymph Node, Mesenteric
* Pancreas
* Spleen
* Thyroid Gland

* Bone Marrow
* Eye
* Intestine Large, Colon
* Intestine Small, Jejunum
* Liver
* Mammary Gland
* Pituitary Gland
* Stomach, Forestomach
* Trachea

MISSING

* Lymph Node, Bronchial

* Lymph Node, Mandibular

* Parathyroid Gland

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 107 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53052

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
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mediastinal
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Larynx
- * Lymph Node, Mesenteric
- * Pancreas
- * Skin
- * Thymus
- * Uterus
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Liver
- * Mammary Gland
- * Parathyroid Gland
- * Spleen
- * Thyroid Gland

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 108 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53053

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Larynx	* Liver
* Lung	* 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	* Lymph Node, Mandibular
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TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 304 TMT: 4
DOSE: 0.625 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53129

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

Liver
[Hepatodiaphragmatic Nodule TGLs = 1-14]

Hepatodiaphragmatic Nodule

* Lung
Alveolus
[Inflammation TGLs = 2-4+5]

Inflammation
Proteinosis

Chronic Active, Mild
Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 305 TMT: 4
DOSE: 0.625 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53130

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung
[Inflammation Alveolus TGLs = 1-4+5]
Inflammation Proteinosis
Chronic Active, Mild Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 306 TMT: 4
DOSE: 0.625 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53131

OBSERVATIONS

* Lung	Alveolus	Inflammation	Chronic Active, Mild
	[Inflammation TGLs = 1-4+5]	Proteinosis	Mild
* Nose	Respirat Epith	Hyperplasia	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 307 TMT: 4
DOSE: 0.625 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53132

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung

[Inflammation Alveolus
TGLs = 1-4+5]

Inflammation
Proteinosis

Chronic Active, Minimal
Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 308 TMT: 4
DOSE: 0.625 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53133

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung
[Inflammation TGLs = 1-4+5] Alveolus Inflammation Proteinosis Chronic Active, Mild Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 310 TMT: 4
DOSE: 0.625 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53135

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung
[Inflammation Alveolus TGLs = 1-4+5]
Inflammation Proteinosis
Chronic Active, Mild Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 501 TMT: 6
DOSE: 1.25 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53106

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Minimal Mild
[Inflammation	Alveolus TGLs = 1-4+5]		

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 502 TMT: 6
DOSE: 1.25 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53107

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung	Alveolus Bronchiole, Epithelium	Hemorrhage Hyperplasia Inflammation Proteinosis	Minimal Minimal Chronic Active, Mild Mild
[Inflammation	Alveolus TGLs = 1-4+5]		

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 503 TMT: 6
DOSE: 1.25 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53108

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Mild Mild
[Inflammation	Alveolus TGLs = 1-4+5]		

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 504 TMT: 6
DOSE: 1.25 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53109

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung	Alveolus Bronchiole, Epithelium	Hemorrhage Hyperplasia Inflammation Proteinosis	Minimal Minimal Chronic Active, Minimal Mild
[Inflammation	Alveolus TGLs = 1-4+5]		

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	505	TMT:	6	SEX:	Female	DAY ON TEST:	93
		DOSE:	1.25 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53110

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Minimal Minimal
[Inflammation	TGLs = 1,2-4]		
* Nose	Olfactory Epi	Degeneration	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	506	TMT:	6	SEX:	Female	DAY ON TEST:	93
		DOSE:	1.25 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53111

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Minimal Mild
[Inflammation	TGLs = 1-4+5]		
* Nose	Olfactory Epi Respirat Epith	Degeneration Necrosis	Minimal Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	507	TMT:	6	SEX:	Female	DAY ON TEST:	93
		DOSE:	1.25 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53112

OBSERVATIONS

* Lung	Alveolus	Hemorrhage	Minimal
	Bronchiole, Epithelium	Hyperplasia	Minimal
	Alveolus	Inflammation	Chronic Active, Mild
	[Inflammation TGLs = 1-4+5]	Proteinosis	Mild
* Nose	Olfactory Epi	Degeneration	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	508	TMT:	6	SEX:	Female	DAY ON TEST:	93
		DOSE:	1.25 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53113

OBSERVATIONS

* Lung		Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Minimal Mild
	[Inflammation	TGLs = 1-4+5]		
* Nose		Olfactory Epi	Degeneration	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 509 TMT: 6
DOSE: 1.25 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53114

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Nose

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Mild Mild
[Inflammation	Alveolus TGLs = 1-4+5]		

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	510	TMT:	6	SEX:	Female	DAY ON TEST:	93
		DOSE:	1.25 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53115

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Mild Mild
[Inflammation	TGLs = 1-4+5]		
* Nose	Olfactory Epi	Degeneration	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	701	TMT:	8	SEX:	Female	DAY ON TEST:	93
		DOSE:	2.5 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53086

OBSERVATIONS

* Lung		Bronchiole, Epithelium	Hyperplasia	Minimal
		Alveolus	Inflammation	Chronic Active, Mild
	[Inflammation	TGLs = 1-4+5]	Proteinosis	Mild
* Nose		Olfactory Epi	Degeneration	Minimal
		Respirat Epith	Hyperplasia	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 702 TMT: 8
DOSE: 2.5 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53087

OBSERVATIONS

* Lung	Alveolus Bronchiole, Epithelium	Hemorrhage Hyperplasia Inflammation Proteinosis	Minimal Minimal Chronic Active, Mild Mild
* Nose	Alveolus Olfactory Epi Olfactory Epi Respirat Epith	Degeneration Hyperplasia Hyperplasia	Minimal Minimal Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 703 TMT: 8
DOSE: 2.5 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53088

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Mild Chronic Active, Mild Mild
* Nose	Alveolus Turbinates Olfactory Epi Respirat Epith	Atrophy Degeneration Hyperplasia	Minimal Minimal Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	704	TMT:	8	SEX:	Female	DAY ON TEST:	93
		DOSE:	2.5 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53089

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Mild Chronic Active, Mild Mild
[Inflammation	TGLs = 1-4+5]		
* Nose	Olfactory Epi	Degeneration	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	705	TMT:	8	SEX:	Female	DAY ON TEST:	93
		DOSE:	2.5 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53090

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Mild Chronic Active, Mild Moderate
[Inflammation	TGLs = 1-4+5]		
* Nose	Olfactory Epi Respirat Epith	Degeneration Hyperplasia	Minimal Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	706	TMT:	8	SEX:	Female	DAY ON TEST:	93
		DOSE:	2.5 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53091

OBSERVATIONS

* Lung		Bronchiole, Epithelium	Hyperplasia	Minimal
		Alveolus	Inflammation	Chronic Active, Minimal
	[Inflammation	TGLs = 1-4+5]	Proteinosis	Mild
* Nose		Olfactory Epi	Degeneration	Minimal
		Olfactory Epi	Hyperplasia	Minimal
		Respirat Epith	Hyperplasia	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 707 TMT: 8
DOSE: 2.5 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53092

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Mild Mild
	Alveolus		
[Inflammation	TGLs = 2-4+5]		
* Nose	Turbinate	Atrophy	Minimal
	Olfactory Epi	Degeneration	Minimal
	Respirat Epith	Hyperplasia	Minimal
Ovary		Cyst	Mild
[Cyst	TGLs = 1-9]		

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	708	TMT:	8	SEX:	Female	DAY ON TEST:	93
		DOSE:	2.5 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53093

OBSERVATIONS

* Lung		Bronchiole, Epithelium	Hyperplasia	Minimal
		Alveolus	Inflammation	Chronic Active, Minimal
	[Inflammation	TGLs = 1-5]	Proteinosis	Minimal
* Nose		Turbinate	Atrophy	Minimal
		Olfactory Epi	Degeneration	Minimal
		Respirat Epith	Hyperplasia	Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM:	709	TMT:	8	SEX:	Female	DAY ON TEST:	93
		DOSE:	2.5 MG/M3	DISP:	Terminal Sacrifice	HISTO:	53094

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Minimal Minimal
* Nose	Alveolus Olfactory Epi Respirat Epith Olfactory Epi	Degeneration Hyperplasia Hyperplasia	Minimal Minimal Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 710 TMT: 8
DOSE: 2.5 MG/M3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 93
HISTO: 53095

OBSERVATIONS

* Lung	Bronchiole, Epithelium	Hyperplasia Inflammation Proteinosis	Minimal Chronic Active, Minimal Mild
* Nose	Alveolus Turbinates Olfactory Epi Respirat Epith	Atrophy Degeneration Hyperplasia	Minimal Minimal Minimal

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 901 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53066

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Lung Bronchiole, Epithelium Hyperplasia Mild
Inflammation Chronic Active, Mild
Proteinosis Mild
- * Nose Alveolus Turbinate Atrophy Minimal
Olfactory Epi Degeneration Moderate
Respirat Epi Hyperplasia Mild
Olfactory Epi Hyperplasia Mild

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 903 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53068

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Lung
 - Alveolar Epith
 - Bronchiole, Epithelium
 - Alveolus
 - * Nose
 - Olfactory Epi
 - Respirat Epith
 - Olfactory Epi
- Hyperplasia
 - Hyperplasia
 - Inflammation
 - Proteinosis
 - Degeneration
 - Hyperplasia
 - Hyperplasia
- Minimal
 - Mild
 - Chronic Active, Moderate
 - Mild
 - Mild
 - Mild
 - Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 904 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53069

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Lymph Node, Mediastinal

OBSERVATIONS

- * Heart
- * Lung
- * Nose
- Cardiomyopathy
- Bronchiole, Epithelium
- Alveolus
- Olfactory Epi
- Respirat Epith
- Olfactory Epi
- Hyperplasia
- Inflammation
- Proteinosis
- Degeneration
- Hyperplasia
- Hyperplasia
- Minimal
- Mild
- Chronic Active, Moderate
- Mild
- Moderate
- Mild
- Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 905 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53070

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Lung
 - Bronchiole, Epithelium Hyperplasia
 - Alveolus Inflammation
 - Turbinate Proteinosis
 - Olfactory Epi Atrophy
 - Respirat Epith Degeneration
 - Olfactory Epi Hyperplasia
- * Nose
 - Mild
 - Chronic Active, Moderate
 - Mild
 - Minimal
 - Moderate
 - Minimal
 - Moderate

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 906 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53071

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Lung
 - Alveolus Hemorrhage Minimal
 - Bronchiole, Epithelium Hyperplasia Mild
 - Inflammation Chronic Active, Mild
 - Proteinosis Mild
- * Nose
 - Turbinate Atrophy Minimal
 - Olfactory Epi Degeneration Moderate
 - Respirat Epith Hyperplasia Mild
 - Olfactory Epi Hyperplasia Moderate

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 907 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53072

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- | | | | |
|--------|---|---|--|
| * Lung | Bronchiole, Epithelium | Hyperplasia
Inflammation
Proteinosis | Mild
Chronic Active, Moderate
Mild |
| * Nose | Alveolus
Turbinate
Olfactory Epi
Respirat Epith
Olfactory Epi | Atrophy
Degeneration
Hyperplasia
Hyperplasia | Minimal
Mild
Mild
Mild |

TDMS No. 60311 - 03

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Date Report Requested: 06/18/2007

Test Type: 90-DAY

COBALT

Time Report Requested: 13:39:05

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 7440-48-4

First Dose M/F: 03/08/05 / 03/07/05

Species/Strain: RATS/F 344

Lab: BNW

ANIMAL NUM: 908 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53073

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Parathyroid Gland

OBSERVATIONS

- * Lung
 - Alveolus
 - Bronchiole, Epithelium
 - [Inflammation TGLs = 1-4+5]
 - Alveolus
 - * Nose
 - Olfactory Epi
 - Respirat Epith
 - Olfactory Epi
- Hemorrhage
Hyperplasia
Inflammation
Proteinosis
- Degeneration
Hyperplasia
Hyperplasia
- Minimal
Mild
Chronic Active, Mild
Mild
- Moderate
Mild
Mild

TDMS No. 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

COBALT

CAS Number: 7440-48-4

Date Report Requested: 06/18/2007

Time Report Requested: 13:39:05

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

ANIMAL NUM: 910 TMT: 10 DOSE: 5.0 MG/M3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 93 HISTO: 53075

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

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

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Parathyroid Gland

OBSERVATIONS

- * Lung
 - Bronchiole, Epithelium
 - Hyperplasia
 - Inflammation
 - Alveolus
 - Proteinosis
- * Nose
 - Turbinate
 - Atrophy
 - Olfactory Epi
 - Degeneration
 - Respirat Epith
 - Hyperplasia
 - Olfactory Epi
 - Hyperplasia

- Mild
- Chronic Active, Mild
- Mild
- Minimal
- Mild
- Minimal
- Mild

*** END OF REPORT ***