

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

F2_M3

NTP Study 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

Study Gender: Both

TDMSE Version: 2.6.0.0_007

PWG Approval Date: NONE

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
control	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	10
Gallbladder	M	+	+	+	+	+	+	+	+	+	+	9
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Heart	+	+	+	+	+	+	+	+	+	+	+	10
-------	---	---	---	---	---	---	---	---	---	---	---	----

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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Lab: BNW

B6C3F1 MICE MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
control	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	M	M	+	+	+	M	M	+	M	M	4
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Prostate	+	+	+	+	+	+	+	+	+	+	10
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10
Germinal Epithelium, Degeneration						1				1	2 1.0

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Lab: BNW

B6C3F1 MICE MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
control	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

HEMATOPOIETIC SYSTEM

Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Bronchial	+	M	M	M	M	+	+	+	+	+	M	5
Lymph Node, Mandibular	M	M	M	+	+	M	M	M	M	+	+	4
Lymph Node, Mediastinal	+	M	M	M	M	M	M	M	M	M	M	1
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	10
Lymphocyte, Necrosis												1 2.0
Spleen	+	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	+	10

INTEGUMENTARY SYSTEM

Mammary Gland	M	M	M	M	M	M	M	M	M	M	M	0
Skin	+	+	+	+	+	+	+	+	+	+	+	10

MUSCULOSKELETAL SYSTEM

Bone	+	+	+	+	+	+	+	+	+	+	+	10
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NERVOUS SYSTEM

Brain	+	+	+	+	+	+	+	+	+	+	+	10
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Lab: BNW

		DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5	5
B6C3F1 MICE MALE	control		0	0	0	0	0	0	0	0	0	0
		ANIMAL ID	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	1
			1	2	3	4	5	6	7	8	9	0

* TOTALS

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	+	10
Lung	+	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	+	10
Trachea	+	+	+	+	+	+	+	+	+	+	+	10

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage, Acute												1 3.0
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	10

URINARY SYSTEM

Kidney	+	+	+	+	+	+	+	+	+	+	+	10
Nephropathy												1 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	10

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ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

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Species/Strain: MICE/B6C3F1

Lab: BNW

	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		2	2	2	2	2	2	2	2	2	2
		0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0

* TOTALS

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	10
Metaplasia, Squamous	2	2	2	1	2	2	2	2	2	1	10 1.8
Lung	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage										1	1.0
Alveolus, Infiltration Cellular, Histiocyte	1	1	1	1	1	1	1	1	1	1	10 1.0
Bronchiole, Epithelium, Vacuolization	1	1	1	1	1	1	1	1	1	1	10 1.0
Cytoplasmic											
Nose	+	+	+	+	+	+	+	+	+	+	10
Olfactory Epithelium, Degeneration	1				1						2 1.0

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

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ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

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Species/Strain: MICE/B6C3F1

Lab: BNW

	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
B6C3F1 MICE MALE	1.25 mg/m3	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		4	4	4	4	4	4	4	4	4	4
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx

Metaplasia, Squamous

+	+	+	+	+	+	+	+	+	+	+	10
2	1	2	2	2	2	2	2	2	2	1	10 1.8

Lung

Alveolus, Infiltration Cellular, Histiocyte
Bronchiole, Epithelium, Vacuolization
Cytoplasmic

+	+	+	+	+	+	+	+	+	+	+	10
1	1	1	1	1	1	1	1	1	1	1	10 1.0
1	1	1	1	1	1	1	1	1	1	1	10 1.0

Nose

Olfactory Epithelium, Degeneration
Olfactory Epithelium, Hyperplasia
Respiratory Epithelium, Degeneration
Respiratory Epithelium, Metaplasia, Squamous

+	+	+	+	+	+	+	+	+	+	+	10
1	1	1	1	1	1	1	1	1	1	1	10 1.0
											1 1.0
1											6 1.0
1											2 1.0

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	2.5 mg/m ³	ANIMAL ID	DAY ON TEST											
			0 0 9 5	0 0 9 5										
			0 0 6 0 1	0 0 6 0 2	0 0 6 0 3	0 0 6 0 4	0 0 6 0 5	0 0 6 0 6	0 0 6 0 7	0 0 6 0 8	0 0 6 0 9	0 0 6 0 0	0 0 6 1 0	

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis

+	+	+	+	+	M	+	+	+	+	+	+	+	+	9
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Testes

+	+	+	+	+	+	+	+	+	+	+	+	+	+	10
---	---	---	---	---	---	---	---	---	---	---	---	---	---	----

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

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Lab: BNW

	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
B6C3F1 MICE MALE	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
2.5 mg/m3		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		6	6	6	6	6	6	6	6	6	6
		0	0	0	0	0	0	0	0	1	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	10
Metaplasia, Squamous	2	2	2	2	2	1	2	2	2	2	10 1.9
Lung	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage	1										1 1.0
Alveolus, Infiltration Cellular, Histiocyte	1	1	1	1	1	1	1	1	1	1	10 1.0
Bronchiole, Epithelium, Hyperplasia	1	1	1	1	1	1	1	1	1	1	10 1.0
Bronchiole, Epithelium, Vacuolization	1	2	2	1	1	2	1	2	2	1	10 1.5
Cytoplasmic											
Nose	+	+	+	+	+	+	+	+	+	+	10
Olfactory Epithelium, Degeneration	1	1	1	1	1	1	1	1	1	1	10 1.0
Olfactory Epithelium, Hyperplasia	1		1		1		1	1	1	1	5 1.0
Respiratory Epithelium, Degeneration	1	1	1		1	1	1	1	1	1	9 1.0
Respiratory Epithelium, Metaplasia, Squamous	1	1					1	1	1	1	5 1.0

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue
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I .. Insufficient tissue BLANK .. Not examined microscopically

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Species/Strain: MICE/B6C3F1

Lab: BNW

		DAY ON TEST	0	0	0	0	0	0	0	0	0
B6C3F1 MICE MALE		0	0	0	0	0	0	0	0	0	0
5 mg/m ³		9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		8	8	8	8	8	8	8	8	8	8
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	10
------------	---	---	---	---	---	---	---	---	---	---	---	----

Testes	+	+	+	+	+	+	+	+	+	+	+	10
Germinal Epithelium, Degeneration												1
												1 1.0

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

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Lab: BNW

		DAY ON TEST									
		ANIMAL ID									
B6C3F1 MICE MALE		0	0	0	0	0	0	0	0	0	0
5 mg/m3		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		8	8	8	8	8	8	8	8	8	8
		0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0

* TOTALS

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	10
Metaplasia, Squamous	2	2	2	2	2	2	2	1	2	2	10 1.9
Lung	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage	1	1	1	1			1		1	2	7 1.1
Alveolar/bronchiolar, Epithelium, Karyomegaly	1	1	1	1	1	1	1	1	1	1	10 1.0
Alveolus, Infiltration Cellular, Histiocyte	2	2	2	2	2	2	2	2	2	2	10 2.0
Alveolus, Proteinosis	1	1	1	1	1	1	1	1	1	1	10 1.0
Bronchiole, Epithelium, Hyperplasia	1	2	2	2	2	2	2	2	2	2	10 1.9
Bronchiole, Epithelium, Vacuolization	3	2	2	3	3	3	3	3	3	2	10 2.7
Cytoplasmic											
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic Active	2	1	1		2		1	1	2	1	8 1.4
Olfactory Epithelium, Degeneration	2	2	2	2	2	2	2	2	2	2	10 2.0
Olfactory Epithelium, Hyperplasia	1		1								2 1.0
Respiratory Epithelium, Degeneration	1	2	2	2	2	2	2	2	2	2	10 1.9
Respiratory Epithelium, Metaplasia, Squamous	1	1	1	1	1	1	1	2	2	2	10 1.3
Turbinate, Atrophy	2	2	2		2	2	3	2	2		8 2.1

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal
- 2) Mild
- 3) Moderate
- 4) Marked

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

		DAY ON TEST											
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		8	8	8	8	8	8	8	8	8	8	8	8
		0	0	0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	9	9	0

* TOTALS

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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BLANK .. Not examined microscopically

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Experiment Number: 60311 - 04

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Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

B6C3F1 MICE MALE	10 mg/m ³	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0
ANIMAL ID		9	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0	0
		1	1	1	1	1	1	1	1	1	1	1
		0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0	
												* TOTALS

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	10
Gallbladder	+	+	+	+	M	+	+	+	+	+		9
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+		10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+		10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+		10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+		10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+		10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+		10
Liver	+	+	+	+	+	+	+	+	+	+		10
Pancreas	+	+	+	+	+	+	+	+	+	+		10
Salivary Glands	+	+	+	+	+	+	+	+	+	+		10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+		10
Hyperkeratosis												1 2.0
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+		10

CARDIOVASCULAR SYSTEM

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+ .. Tissue examined microscopically

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

B6C3F1 MICE MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
10 mg/m3	ANIMAL ID	9	9	9	9	9	9	9	9	9	9	
		5	5	5	5	5	5	5	5	5	5	
* TOTALS												
Blood Vessel		+										1
Heart		+	+	+	+	+	+	+	+	+	+	10
ENDOCRINE SYSTEM												
Adrenal Cortex		+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla		+	+	I	+	+	+	+	+	+	+	9
Islets, Pancreatic		+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland		+	M	+	M	+	+	+	M	M	+	6
Pituitary Gland		I	+	+	+	+	+	+	+	+	+	9
Thyroid Gland		+	+	+	+	+	+	+	+	+	+	10
GENERAL BODY SYSTEM												
NONE												
GENITAL SYSTEM												
Coagulating Gland		+										1
Epididymis		+	+	+	+	+	+	+	+	+	+	10
Atrophy		1	1	1	1	1	1	1	1	1	1	10 1.0
Exfoliated Germ Cell		3	3	3	3	3	2	3	2	2	3	10 2.7
Hypospermia		3	3	3	3	3	3	3	2	3	3	10 2.9
Vacuolization Cytoplasmic		1	1	1	1	1	1	1	1	1	1	9 1.0

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Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

B6C3F1 MICE MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
10 mg/m ³	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	5	5	5	5	5
Preputial Gland		0	0	0	0	0	0	0	0	0	0
		1	1	1	1	1	1	1	1	1	1
Prostate		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	1
Seminal Vesicle		0	0	0	0	0	0	0	0	0	0
		1	2	3	4	5	6	7	8	9	0
* TOTALS											
Preputial Gland		+	+	+	+	+	+	+	+	+	+
Prostate		+	+	+	+	+	+	+	+	+	+
Seminal Vesicle		+	+	+	+	+	+	+	+	+	+
Testes		+	+	+	+	+	+	+	+	+	+
Germinal Epithelium, Degeneration		4	4	4	4	4	4	4	4	4	4
10 4.0											
HEMATOPOIETIC SYSTEM											
Bone Marrow		+	+	+	+	+	+	+	+	+	+
Lymph Node, Bronchial Erythropagocytosis		M	+	+	+	M	+	M	+	+	M
						1		1			
Lymph Node, Mandibular		+	+	+	+	+	+	M	M	+	
Lymph Node, Mediastinal		+	M	M	M	+	+	M	+	M	+
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	+
Spleen		+	+	+	+	+	+	+	+	+	+
Thymus		+	+	+	+	+	+	+	+	+	+
INTEGUMENTARY SYSTEM											
Mammary Gland		M	M	M	M	M	M	M	M	M	M
Skin		+	+	+	+	+	+	+	+	+	+
0											
10											

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

		DAY ON TEST									
		ANIMAL ID									
B6C3F1 MICE MALE		0	0	0	0	0	0	0	0	0	0
10 mg/m3		0	0	0	0	0	0	0	0	0	0
		1	1	1	1	1	1	1	1	1	1
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

MUSCULOSKELETAL SYSTEM

Bone

+ + + + + + + + + + 10

NERVOUS SYSTEM

Brain

+ + + + + + + + + + 10

RESPIRATORY SYSTEM

Larynx

Metaplasia, Squamous

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 10 2.1 |

Lung

Hemorrhage

Metaplasia, Osseous

Alveolar/bronchiolar, Epithelium, Karyomegaly

Alveolus, Infiltration Cellular, Histiocyte

Alveolus, Proteinosis

Bronchiole, Epithelium, Hyperplasia

Bronchiole, Epithelium, Vacuolization

Cytoplasmic

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 1 | 1 | | | | 1 | 1 | 1 | 1 | | | 6 1.0 |
| | | | | | 1 | | | | | | 1 1.0 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 3.0 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 3.0 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.0 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 3.0 |
| 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 10 3.9 |

Nose

Inflammation, Chronic Active

Olfactory Epithelium, Degeneration

Olfactory Epithelium, Hyperplasia

Respiratory Epithelium, Degeneration

Respiratory Epithelium, Metaplasia, Squamous

Turbinate, Atrophy

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| + | + | + | + | + | + | + | + | + | + | + | 10 |
| 2 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | | 10 2.5 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 10 3.0 |
| 2 | | | | | | | 1 | 1 | | | 3 1.3 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 10 2.0 |
| 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | | 10 1.9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 10 3.0 |

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Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| | | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|------------------------------|--|-------------|---|---|---|---|---|---|---|---|---|-------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| B6C3F1 MICE MALE | | | | | | | | | | | | |
| 10 mg/m3 | | ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| * TOTALS | | | | | | | | | | | | |
| Trachea | | + | + | + | + | + | + | + | + | + | + | 10 |
| Erosion | | | | | | | | | | | | 1 1.0 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | |
| Eye | | + | + | + | + | + | + | + | + | + | + | 10 |
| Harderian Gland | | + | + | + | + | + | + | + | + | + | + | 10 |
| URINARY SYSTEM | | | | | | | | | | | | |
| Kidney | | + | + | + | + | + | + | + | + | + | + | 10 |
| Nephropathy | | | | | | | | | | | | 1 1.0 |
| Renal Tubule, Cyst | | | | | | | | | | | | 1 |
| Renal Tubule, Cyst, Multiple | | | | | | | | | | | | 1 |
| Urinary Bladder | | + | + | + | + | + | + | + | + | + | + | 10 |

*** END OF MALE DATA ***

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

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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

| | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|--------------------|-------------|----------|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| B6C3F1 MICE FEMALE | ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| control | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | |
|---------------------------------------|---|---|---|---|---|---|---|---|---|---|-------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | 10 |
| Gallbladder | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | 10 |
| Liver
Inflammation, Chronic Active | + | + | + | + | + | + | + | + | + | + | 10 |
| | | | | | | | | | | | 1 1.0 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | 10 |

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| | | DAY ON TEST | 0
0
9
6 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ANIMAL ID | 0
0
1
0
1 | 0
0
1
0
2 | 0
0
1
0
3 | 0
0
1
0
4 | 0
0
1
0
5 | 0
0
1
0
6 | 0
0
1
0
7 | 0
0
1
0
8 | 0
0
1
0
9 | 0
0
1
0
0 |
| * TOTALS | | | | | | | | | | | | |
| Blood Vessel | | | | | | | | | | | | 1 |
| Heart | | | + | + | + | + | + | + | + | + | + | 10 |
| ENDOCRINE SYSTEM | | | | | | | | | | | | |
| Adrenal Cortex | | | + | + | + | + | + | + | + | + | + | 10 |
| Adrenal Medulla | | | + | + | + | + | + | + | + | + | + | 10 |
| Islets, Pancreatic | | | + | + | + | + | + | + | + | + | + | 10 |
| Parathyroid Gland | | | + | + | + | + | + | M | + | + | M | + |
| Pituitary Gland | | | + | + | + | + | + | + | + | + | + | 10 |
| Thyroid Gland | | | + | + | + | + | + | + | + | + | + | 10 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | |
| GENITAL SYSTEM | | | | | | | | | | | | |
| Clitoral Gland | | | M | M | + | + | + | M | + | + | + | 7 |
| Ovary | | | + | + | + | + | + | + | + | + | + | 10 |
| Uterus | | | + | + | + | + | + | + | + | + | + | 10 |
| Endometrium, Inflammation | | | 1 | | | | | | | | | 1 1.0 |

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Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

HEMATOPOIETIC SYSTEM

INTEGUMENTARY SYSTEM

MUSCULOSKELETAL SYSTEM

Bone + + + + + + + + + + + 10

NERVOUS SYSTEM

Brain + + + + + + + + + + + 10

RESPIRATORY SYSTEM

* - Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ Tissue examined microscopically

X Lesion present

X .. Lesion present

M Missing tissue

A Autolysis precludes evaluation

BLANK Not examined microscopically.

1-4 Lesion qualified as:

Lesion qualified as:

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

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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

| B6C3F1 MICE FEMALE | DAY ON TEST | | | | | | | | | | | * TOTALS |
|--|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|
| | | 0
0
9
6 | |
| control | ANIMAL ID | 0
0
1
0
1 | 0
0
1
0
2 | 0
0
1
0
3 | 0
0
1
0
4 | 0
0
1
0
5 | 0
0
1
0
6 | 0
0
1
0
7 | 0
0
1
0
8 | 0
0
1
0
9 | 0
0
1
0
0 | |
| Larynx | | + + + + + + + + + + | | | | | | | | | | 10 |
| Lung | | + + + + + + + + + + | | | | | | | | | | 10 |
| Nose | | + + + + + + + + + + | | | | | | | | | | 10 |
| Pleura
Infiltration Cellular, Mixed Cell, Focal | | | | | | +
1 | | | | | | 1
1 1.0 |
| Trachea | | + + + + + + + + + + | | | | | | | | | | 10 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | |
| Eye | | + + + + + + + + + + | | | | | | | | | | 10 |
| Harderian Gland | | + + + + + + + + + + | | | | | | | | | | 10 |
| URINARY SYSTEM | | | | | | | | | | | | |
| Kidney
Nephropathy | | + + + + + + + + + + | | | | | | | | | | 10
1 1.0 |
| Urinary Bladder | | + + + + + + + + + + | | | | | | | | | | 10 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal 3) Moderate
- 2) Mild 4) Marked

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

| B6C3F1 MICE FEMALE
0.625 mg/m ³ | DAY ON TEST | | | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|------------------|
| | | 0
0
9
6 | 0
0
9
6 | 0
0
9
6 |
| ANIMAL ID | 0
0
3
0
1 | 0
0
3
0
2 | 0
0
3
0
3 | 0
0
3
0
4 | 0
0
3
0
5 | 0
0
3
0
6 | 0
0
3
0
7 | 0
0
3
0
8 | 0
0
3
0
9 | 0
0
3
0
0 | 0
0
3
1
0 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE
0.625 mg/m ³ | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

* TOTALS

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Larynx | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Metaplasia, Squamous | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | | 10 1.3 |
| Lung | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 1.0 |
| Bronchiole, Epithelium, Vacuolization | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 1.0 |
| Cytoplasmic | | | | | | | | | | | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Olfactory Epithelium, Degeneration | 1 | | | | | | | | | | | 1 1.0 |

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

| B6C3F1 MICE FEMALE
1.25 mg/m3 | ANIMAL ID | DAY ON TEST | | | | | | | | | |
|----------------------------------|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | 0
0
9
6 |
| | | 0
0
5
0
1 | 0
0
5
0
2 | 0
0
5
0
3 | 0
0
5
0
4 | 0
0
5
0
5 | 0
0
5
0
6 | 0
0
5
0
7 | 0
0
5
0
8 | 0
0
5
0
9 | 0
0
5
0
0 |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE
1.25 mg/m3 | DAY ON TEST
ANIMAL ID | | | | | | | | | | | | |
|----------------------------------|--------------------------|---|---|---|---|---|---|---|---|---|---|---|--|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 0 | | |

* TOTALS

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Metaplasia, Squamous | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | | 10 1.4 |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 1.0 |
| Bronchiole, Epithelium, Vacuolization | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 1.0 |
| Cytoplasmic | | | | | | | | | | | | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Olfactory Epithelium, Degeneration | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 7 1.0 |
| Respiratory Epithelium, Degeneration | | | | | | | | | | | | | 1 1.0 |

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

| B6C3F1 MICE FEMALE
2.5 mg/m3 | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 6 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

* TOTALS

ALIMENTARY SYSTEM

| | | |
|---------------------------|---|---|
| Esophagus | + | 1 |
| Gallbladder | + | 1 |
| Intestine Large, Cecum | + | 1 |
| Intestine Large, Colon | + | 1 |
| Intestine Large, Rectum | + | 1 |
| Intestine Small, Duodenum | + | 1 |
| Intestine Small, Ileum | + | 1 |
| Intestine Small, Jejunum | + | 1 |
| Liver | + | 1 |
| Pancreas | + | 1 |
| Salivary Glands | + | 1 |
| Stomach, Forestomach | + | 1 |
| Stomach, Glandular | + | 1 |

CARDIOVASCULAR SYSTEM

| | | |
|-------|---|---|
| Heart | + | 1 |
|-------|---|---|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE
2.5 mg/m3 | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 6 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

* TOTALS

ENDOCRINE SYSTEM

| | | |
|--------------------|---|---|
| Adrenal Cortex | + | 1 |
| Adrenal Medulla | + | 1 |
| Islets, Pancreatic | + | 1 |
| Parathyroid Gland | + | 1 |
| Pituitary Gland | + | 1 |
| Thyroid Gland | + | 1 |

GENERAL BODY SYSTEM

| | | |
|------|--|--|
| NONE | | |
|------|--|--|

GENITAL SYSTEM

| | | |
|----------------|---|---|
| Clitoral Gland | + | 1 |
| Ovary | + | 1 |
| Uterus | + | 1 |

HEMATOPOIETIC SYSTEM

| | | |
|-----------------------|---|---|
| Bone Marrow | + | 1 |
| Lymph Node, Bronchial | + | 1 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal 3) Moderate
- 2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE
2.5 mg/m3 | DAY ON TEST
ANIMAL ID | | | | | | | | | | | | | * TOTALS |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| | | 0
0
9
6 | |
| Lymph Node, Mandibular | | | | | | | | | | | | | | 1 |
| Lymph Node, Mediastinal | | | | | | | | | | | | | | 0 |
| Lymph Node, Mesenteric | | | | | | | | | | | | | | 1 |
| Spleen | | | | | | | | | | | | | | 1 |
| Thymus | | | | | | | | | | | | | | 1 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | |
| Mammary Gland | | | | | | | | | | | | | | 1 |
| Skin | | | | | | | | | | | | | | 1 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | |
| Bone | | | | | | | | | | | | | | 1 |
| NERVOUS SYSTEM | | | | | | | | | | | | | | |
| Brain | | | | | | | | | | | | | | 1 |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Metaplasia, Squamous | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 10 1.6 |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE
2.5 mg/m ³ | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|--|-------------|---|---|---|---|---|---|---|---|---|--------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 6 |
| * TOTALS | | | | | | | | | | | |
| Arteriole, Thrombosis | | | | | | | | | | | 1 1.0 |
| Bronchiole, Epithelium, Hyperplasia | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 1.0 |
| Bronchiole, Epithelium, Vacuolization
Cytoplasmic | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 10 1.1 |
| Nose | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | | | | | | | | | | | 1 1.0 |
| Olfactory Epithelium, Degeneration | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | 9 1.0 |
| Olfactory Epithelium, Hyperplasia | 1 | | 1 | | | | | | | | 3 1.0 |
| Respiratory Epithelium, Degeneration | 1 | 1 | 1 | | 1 | 1 | 1 | | | | 8 1.0 |
| Respiratory Epithelium, Metaplasia, Squamous | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 1.0 |
| Trachea | | | | | | | | | | | 1 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | |
| Eye | | | | | | | | | | | 1 |
| Harderian Gland | | | | | | | | | | | 1 |
| URINARY SYSTEM | | | | | | | | | | | |
| Kidney | | | | | | | | | | | 1 |
| Urinary Bladder | | | | | | | | | | | 1 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal
- 2) Mild
- 3) Moderate
- 4) Marked

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

| B6C3F1 MICE FEMALE | 5 mg/m ³ | ANIMAL ID | DAY ON TEST | | | | | | | | | | | |
|--------------------|---------------------|-----------|-------------|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 0 | 0 |

* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE | 5 mg/m ³ | ANIMAL ID | DAY ON TEST | | | | | | | | | | | | |
|--------------------|---------------------|-----------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | 0
0
9
6 | |
| | | | 0
0
9
6 | |
| | | | 0
0
9
0 | 0
0
9
1 | 0
0
9
2 | 0
0
9
3 | 0
0
9
4 | 0
0
9
5 | 0
0
9
6 | 0
0
9
7 | 0
0
9
8 | 0
0
9
9 | 0
0
9
0 | 0
0
9
1 | 0
0
9
2 |

* TOTALS

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx

Metaplasia, Squamous

| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| 1 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 1.8 |

Lung

Hemorrhage

Alveolar/bronchiolar, Epithelium, Karyomegaly

Alveolus, Infiltration Cellular, Histiocyte

Alveolus, Proteinosis

Bronchiole, Epithelium, Hyperplasia

Bronchiole, Epithelium, Vacuolization

Cytoplasmic

| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 1.0 |
| 3 | 1 | 3 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 10 1.7 |
| 2 | 2 | 3 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 1.0 |
| 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 1.9 |
| 2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | | | | 10 2.6 |

Nose

Inflammation, Chronic Active

Olfactory Epithelium, Degeneration

Respiratory Epithelium, Degeneration

Respiratory Epithelium, Metaplasia, Squamous

Turbinate, Atrophy

| + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| 3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | | | | | 10 2.5 |
| 3 | 2 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | | | | | 10 2.5 |
| 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | 10 1.9 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | 10 2.0 |
| 2 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 1 | 2 | | | | | 10 2.2 |

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

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

Lab: BNW

| B6C3F1 MICE FEMALE
5 mg/m ³ | DAY ON TEST | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 0 |
| | * TOTALS | | | | | | | | | | |

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

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Cobalt

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CAS Number: 7440-48-4

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

Species/Strain: MICE/B6C3F1

Lab: BNW

| B6C3F1 MICE FEMALE
10 mg/m ³ | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|--|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

* TOTALS

ALIMENTARY SYSTEM

| | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | 10 |
| Gallbladder | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | 10 |
| Liver | + | + | + | + | + | + | + | + | + | + | 10 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | 10 |

CARDIOVASCULAR SYSTEM

| | | |
|--------------|---|---|
| Blood Vessel | + | 1 |
|--------------|---|---|

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+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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I .. Insufficient tissue

BLANK .. Not examined microscopically

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2) Mild 4) Marked

Experiment Number: 60311 - 04

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 08/16/2012

Test Type: 90-DAY

Cobalt

Time Report Requested: 09:00:49

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

| B6C3F1 MICE FEMALE
10 mg/m3 | DAY ON TEST
ANIMAL ID | | | | | | | | | | | * TOTALS |
|--------------------------------|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| | | 0
0
9
6 | |
| Heart | | + | + | + | + | + | + | + | + | + | + | 10 |
| ENDOCRINE SYSTEM | | | | | | | | | | | | |
| Adrenal Cortex | | + | + | + | + | + | + | + | + | + | + | 10 |
| Adrenal Medulla | | + | + | + | + | + | + | + | + | + | + | 10 |
| Islets, Pancreatic | | + | + | + | + | + | + | + | + | + | + | 10 |
| Parathyroid Gland | | M | + | M | + | M | + | M | + | M | + | 6 |
| Pituitary Gland | | + | + | + | + | + | + | + | + | + | + | 10 |
| Thyroid Gland | | + | + | M | + | + | + | + | + | + | + | 9 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | |
| GENITAL SYSTEM | | | | | | | | | | | | |
| Clitoral Gland | | + | + | M | + | + | M | + | M | + | + | 7 |
| Ovary | | + | + | + | + | + | + | + | + | + | + | 10 |
| Uterus | | + | + | + | + | + | + | + | + | + | + | 10 |
| Endometrium, Inflammation | | | | | | | | | | | | 1 1.0 |
| HEMATOPOIETIC SYSTEM | | | | | | | | | | | | |

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+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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Cobalt

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Species/Strain: MICE/B6C3F1

Lab: BNW

| B6C3F1 MICE FEMALE
10 mg/m ³ | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|--|-------------|----------|---|---|---|---|---|---|---|---|----|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |
| Bone Marrow | | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Bronchial | | + | M | + | M | + | + | + | + | + | 7 |
| Lymph Node, Mandibular | | + | + | M | + | + | + | M | + | M | + |
| Lymph Node, Mediastinal | | + | M | M | M | M | M | + | M | + | 4 |
| Lymph Node, Mesenteric | | + | + | + | + | + | + | + | + | + | 10 |
| Spleen | | + | + | + | + | + | + | + | + | + | 10 |
| Thymus | | + | + | + | + | + | + | + | + | + | 10 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | |
| Mammary Gland | | + | + | + | + | + | + | + | + | + | 10 |
| Skin | | + | + | + | + | + | + | + | + | + | 10 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | |
| Bone | | + | + | + | + | + | + | + | + | + | 10 |
| NERVOUS SYSTEM | | | | | | | | | | | |
| Brain | | + | + | + | + | + | + | + | + | + | 10 |
| RESPIRATORY SYSTEM | | | | | | | | | | | |
| Larynx | | + | + | + | + | + | + | + | + | + | 10 |

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Lab: BNW

| B6C3F1 MICE FEMALE | DAY ON TEST | | | | | | | | | | | * TOTALS |
|---|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| | | 0
0
9
6 | |
| 10 mg/m ³ | ANIMAL ID | 0
1
1
0
1 | 0
1
1
0
2 | 0
1
1
0
3 | 0
1
1
0
4 | 0
1
1
0
5 | 0
1
1
0
6 | 0
1
1
0
7 | 0
1
1
0
8 | 0
1
1
0
9 | 0
1
1
0
0 | |
| Metaplasia, Squamous | | 3
3
2
2
2 | 3
1
1
0
2 | 2
1
1
0
3 | 2
1
1
0
4 | 2
1
1
0
5 | 2
1
1
0
6 | 2
1
1
0
7 | 2
1
1
0
8 | 2
1
1
0
9 | 2
1
1
0
0 | 10 2.2 |
| Lung | | +
+
+
+ | +
1
1
1 | 10 |
| Emphysema | | | 1 | | | | | | | | | 3 2.0 |
| Hemorrhage | | | | | | | | | | | | 2 1.0 |
| Alveolar/bronchiolar, Epithelium, Karyomegaly | | 3
3
3
3 | 10 3.0 |
| Alveolus, Infiltration Cellular, Histiocyte | | 3
3
3
3 | 10 3.0 |
| Alveolus, Proteinosis | | 1
2
2
2 | 2
1
1
2 | 10 1.8 |
| Bronchiole, Epithelium, Hyperplasia | | 3
3
3
3 | 10 3.0 |
| Bronchiole, Epithelium, Vacuolization | | 4
4
4
4 | 4
4
4
4 | 4
4
4
4 | 4
4
4
4 | 4
4
4
4 | 3
3
3
3 | 4
4
4
4 | 4
4
4
4 | 4
4
4
4 | 4
4
4
4 | 10 3.9 |
| Cytoplasmic | | | | | | | | | | | | |
| Nose | | +
+
+
+ | +
2
3
2 | +
3
2
3 | +
3
3
3 | 10 |
| Inflammation, Chronic Active | | | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 2 | 10 2.4 |
| Olfactory Epithelium, Degeneration | | | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 2.9 |
| Respiratory Epithelium, Degeneration | | | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 1.9 |
| Respiratory Epithelium, Metaplasia, Squamous | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.0 |
| Turbinate, Atrophy | | | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 2.9 |
| Trachea | | +
+

+ | +
2
3 | +
3
3 | 9 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | |
| Eye | | +
+
+
+ | +
2
3
2 | +
3
2
3 | +
3
3
3 | 10 |
| Harderian Gland | | +
+
+
+ | +
1
1
1 | 10 |
| Hemorrhage | | | | | | | | | | | | 1 1.0 |
| URINARY SYSTEM | | | | | | | | | | | | |
| Kidney | | +
+
+
+ | +
2
3
2 | +
3
2
3 | +
3
3
3 | 10 |

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Lab: BNW

| | | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|----------------------------|-----------|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| B6C3F1 MICE FEMALE | | | | | | | | | | | | |
| 10 mg/m³ | | | | | | | | | | | | |
| | ANIMAL ID | | | | | | | | | | | |
| Nephropathy | | | 1 | | 1 | | | | | | | |
| Urinary Bladder | | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

*** END OF REPORT ***

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