

Experiment Number: 60311 - 04

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH  
AVERAGE SEVERITY GRADES[b]**

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

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

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
------------------	---------	-------------	------------	-----------	---------	----------

**Disposition Summary**

Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Survivors						
Terminal Sacrifice	10	10	10	10	10	10
Animals Examined Microscopically	10	10	10	10	10	10

## ALIMENTARY SYSTEM

Esophagus	(10)	(0)	(0)	(0)	(0)	(10)
Gallbladder	(9)	(0)	(0)	(0)	(0)	(9)
Intestine Large, Cecum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(0)	(0)	(10)
Liver	(10)	(0)	(0)	(0)	(0)	(10)
Pancreas	(10)	(0)	(0)	(0)	(0)	(10)
Salivary Glands	(10)	(0)	(0)	(0)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(0)	(0)	(0)	(10)
Hyperkeratosis						1 [2.0]
Stomach, Glandular	(10)	(0)	(0)	(0)	(0)	(10)

## CARDIOVASCULAR SYSTEM

Blood Vessel	(0)	(0)	(0)	(0)	(0)	(1)
Heart	(10)	(0)	(0)	(0)	(0)	(10)

## ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(0)	(0)	(0)	(0)	(10)
Adrenal Medulla	(10)	(0)	(0)	(0)	(0)	(9)
Islets, Pancreatic	(10)	(0)	(0)	(0)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Parathyroid Gland	(4)	(0)	(0)	(0)	(0)	(6)
Pituitary Gland	(10)	(0)	(0)	(0)	(0)	(9)
Thyroid Gland	(10)	(0)	(0)	(0)	(0)	(10)

## GENERAL BODY SYSTEM

None

## GENITAL SYSTEM

Coagulating Gland	(0)	(0)	(0)	(0)	(0)	(1)
Epididymis	(10)	(10)	(10)	(9)	(10)	(10)
Atrophy						10 [1.0]
Exfoliated Germ Cell						10 [2.7]
Hypospermia						10 [2.9]
Vacuolization Cytoplasmic						9 [1.0]
Preputial Gland	(10)	(0)	(0)	(0)	(0)	(10)
Prostate	(10)	(0)	(0)	(0)	(0)	(10)
Seminal Vesicle	(10)	(0)	(0)	(0)	(0)	(10)
Testes	(10)	(10)	(10)	(10)	(10)	(10)
Germinal Epithelium, Degeneration	2 [1.0]				1 [1.0]	10 [4.0]

## HEMATOPOIETIC SYSTEM

Bone Marrow	(10)	(0)	(0)	(0)	(0)	(10)
Lymph Node, Bronchial	(5)	(0)	(0)	(0)	(0)	(6)
Erythrophagocytosis						2 [1.0]
Lymph Node, Mandibular	(4)	(0)	(0)	(0)	(0)	(8)
Lymph Node, Mediastinal	(1)	(0)	(0)	(0)	(0)	(5)
Lymph Node, Mesenteric	(10)	(0)	(0)	(0)	(0)	(10)
Lymphocyte, Necrosis	1 [2.0]					
Spleen	(10)	(0)	(0)	(0)	(0)	(10)
Thymus	(10)	(0)	(0)	(0)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
<b>INTEGUMENTARY SYSTEM</b>						
Skin	(10)	(0)	(0)	(0)	(0)	(10)
<b>MUSCULOSKELETAL SYSTEM</b>						
Bone	(10)	(0)	(0)	(0)	(0)	(10)
<b>NERVOUS SYSTEM</b>						
Brain	(10)	(0)	(0)	(0)	(0)	(10)
<b>RESPIRATORY SYSTEM</b>						
Larynx	(10)	(10)	(10)	(10)	(10)	(10)
Metaplasia, Squamous		10 [1.8]	10 [1.8]	10 [1.9]	10 [1.9]	10 [2.1]
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Hemorrhage		1 [1.0]		1 [1.0]	7 [1.1]	6 [1.0]
Metaplasia, Osseous						1 [1.0]
Alveolar/bronchiolar, Epithelium, Karyomegaly					10 [1.0]	10 [3.0]
Alveolus, Infiltration Cellular, Histiocyte		10 [1.0]	10 [1.0]	10 [1.0]	10 [2.0]	10 [3.0]
Alveolus, Proteinosis					10 [1.0]	10 [2.0]
Bronchiole, Epithelium, Hyperplasia				10 [1.0]	10 [1.9]	10 [3.0]
Bronchiole, Epithelium, Vacuolization Cytoplasmic		10 [1.0]	10 [1.0]	10 [1.5]	10 [2.7]	10 [3.9]
Nose	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active					8 [1.4]	10 [2.5]
Olfactory Epithelium, Degeneration		2 [1.0]	10 [1.0]	10 [1.0]	10 [2.0]	10 [3.0]
Olfactory Epithelium, Hyperplasia			1 [1.0]	5 [1.0]	2 [1.0]	3 [1.3]
Respiratory Epithelium, Degeneration			6 [1.0]	9 [1.0]	10 [1.9]	10 [2.0]
Respiratory Epithelium, Metaplasia, Squamous			2 [1.0]	5 [1.0]	10 [1.3]	10 [1.9]
Turbinate, Atrophy					8 [2.1]	10 [3.0]
Trachea	(10)	(0)	(0)	(0)	(0)	(10)
Erosion						1 [1.0]

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
<b>SPECIAL SENSES SYSTEM</b>						
Eye	(10)	(0)	(0)	(0)	(0)	(10)
Hemorrhage, Acute	1 [3.0]					
Harderian Gland	(10)	(0)	(0)	(0)	(0)	(10)
<b>URINARY SYSTEM</b>						
Kidney	(10)	(0)	(0)	(0)	(0)	(10)
Nephropathy	1 [1.0]					1 [1.0]
Renal Tubule, Cyst						1
Renal Tubule, Cyst, Multiple						1
Urinary Bladder	(10)	(0)	(0)	(0)	(0)	(10)

\*\*\* END OF MALE \*\*\*

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
--------------------	---------	-------------	------------	-----------	---------	----------

**Disposition Summary**

Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Accidentally Killed				1		
Survivors						
Terminal Sacrifice	10	10	10	9	10	10
Animals Examined Microscopically	10	10	10	10	10	10

## ALIMENTARY SYSTEM

Esophagus	(10)	(0)	(0)	(1)	(0)	(10)
Gallbladder	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Large, Cecum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(1)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(1)	(0)	(10)
Liver	(10)	(0)	(0)	(1)	(0)	(10)
Inflammation, Chronic Active	1 [1.0]					
Pancreas	(10)	(0)	(0)	(1)	(0)	(10)
Salivary Glands	(10)	(0)	(0)	(1)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(0)	(1)	(0)	(10)
Stomach, Glandular	(10)	(0)	(0)	(1)	(0)	(10)

## CARDIOVASCULAR SYSTEM

Blood Vessel	(1)	(0)	(0)	(0)	(0)	(1)
Heart	(10)	(0)	(0)	(1)	(0)	(10)

## ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(0)	(0)	(1)	(0)	(10)
Adrenal Medulla	(10)	(0)	(0)	(1)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Islets, Pancreatic	(10)	(0)	(0)	(1)	(0)	(10)
Parathyroid Gland	(8)	(0)	(0)	(1)	(0)	(6)
Pituitary Gland	(10)	(0)	(0)	(1)	(0)	(10)
Thyroid Gland	(10)	(0)	(0)	(1)	(0)	(9)

## GENERAL BODY SYSTEM

None

## GENITAL SYSTEM

Clitoral Gland	(7)	(0)	(0)	(1)	(0)	(7)
Ovary	(10)	(0)	(0)	(1)	(0)	(10)
Uterus	(10)	(0)	(0)	(1)	(0)	(10)
Endometrium, Inflammation	1 [1.0]					1 [1.0]

## HEMATOPOIETIC SYSTEM

Bone Marrow	(10)	(0)	(0)	(1)	(0)	(10)
Lymph Node, Bronchial	(6)	(0)	(0)	(1)	(0)	(7)
Lymph Node, Mandibular	(8)	(0)	(0)	(1)	(0)	(7)
Lymph Node, Mediastinal	(1)	(0)	(0)	(0)	(0)	(4)
Lymph Node, Mesenteric	(10)	(0)	(0)	(1)	(0)	(10)
Spleen	(10)	(0)	(0)	(1)	(0)	(10)
Thymus	(10)	(0)	(0)	(1)	(0)	(10)

## INTEGUMENTARY SYSTEM

Mammary Gland	(10)	(0)	(0)	(1)	(0)	(10)
Skin	(10)	(0)	(0)	(1)	(0)	(10)

## MUSCULOSKELETAL SYSTEM

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Bone	(10)	(0)	(0)	(1)	(0)	(10)
<b>NERVOUS SYSTEM</b>						
Brain	(10)	(0)	(0)	(1)	(0)	(10)
<b>RESPIRATORY SYSTEM</b>						
Larynx	(10)	(10)	(10)	(10)	(10)	(10)
Metaplasia, Squamous		10 [1.3]	10 [1.4]	10 [1.6]	10 [1.8]	10 [2.2]
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Emphysema						3 [2.0]
Hemorrhage					8 [1.0]	2 [1.0]
Alveolar/bronchiolar, Epithelium, Karyomegaly					10 [1.7]	10 [3.0]
Alveolus, Infiltration Cellular, Histiocyte		10 [1.0]	10 [1.0]	10 [1.0]	10 [2.1]	10 [3.0]
Alveolus, Proteinosis					10 [1.0]	10 [1.8]
Arteriole, Thrombosis				1 [1.0]		
Bronchiole, Epithelium, Hyperplasia				10 [1.0]	10 [1.9]	10 [3.0]
Bronchiole, Epithelium, Vacuolization Cytoplasmic		10 [1.0]	10 [1.0]	10 [1.1]	10 [2.6]	10 [3.9]
Nose	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active				1 [1.0]	10 [2.5]	10 [2.4]
Olfactory Epithelium, Degeneration		1 [1.0]	7 [1.0]	9 [1.0]	10 [2.5]	10 [2.9]
Olfactory Epithelium, Hyperplasia				3 [1.0]		
Respiratory Epithelium, Degeneration			1 [1.0]	8 [1.0]	10 [1.9]	10 [1.9]
Respiratory Epithelium, Metaplasia, Squamous				9 [1.0]	10 [2.0]	10 [2.0]
Turbinate, Atrophy					10 [2.2]	10 [2.9]
Pleura	(1)	(0)	(0)	(0)	(0)	(0)
Infiltration Cellular, Mixed Cell, Focal	1 [1.0]					
Trachea	(10)	(0)	(0)	(1)	(0)	(9)
<b>SPECIAL SENSES SYSTEM</b>						
Eye	(10)	(0)	(0)	(1)	(0)	(10)

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)



Experiment Number: 60311 - 04

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH  
AVERAGE SEVERITY GRADES[b]**

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	control	0.625 mg/m3	1.25 mg/m3	2.5 mg/m3	5 mg/m3	10 mg/m3
Harderian Gland Hemorrhage	(10)	(0)	(0)	(1)	(0)	(10) 1 [1.0]
<hr/>						
URINARY SYSTEM						
Kidney Nephropathy	(10) 1 [1.0]	(0)	(0)	(1)	(0)	(10) 2 [1.0]
Urinary Bladder	(10)	(0)	(0)	(1)	(0)	(10)

---

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

a - Number of animals examined microscopically at site and number of animals with lesion

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)