

**TDMS No.** 60311 - 06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** MICE/B6C3F1

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Cobalt

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

**Date Report Requested:** 09/08/2011

**Time Report Requested:** 08:23:29

**First Dose M/F:** 05/15/06 / 05/15/06

**Lab:** BNW

F1\_M3

**C Number:** C60311  
**Lock Date:** 12/03/2008  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**Study Gender:** Both  
**TDMSE Version:** 2.4.2.1\_003  
**PWG Approval Date:** NONE

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**SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS IN THE ANALYSIS OF COBALT**

**MALE MICE**

**Organ**

Adrenal Cortex

Eye: Cornea

Heart

Kidney

Larynx: Respiratory Epithelium

Larynx: Squamous Epithelium

Liver

Lung

Lung: Alveolar Epithelium

Lung: Alveolar/Bronchiolar Epithelium

Lung: Alveolus

Lung: Bronchiole, Epithelium

Nose

Nose: Olfactory Epithelium

Nose: Respiratory Epithelium

Nose: Turbinate

Spleen

Stomach, Forestomach

Testes: Germinal Epithelium

**Morphology**

Hyperplasia

Hypertrophy

Inflammation Chronic

Cardiomyopathy

Nephropathy

Metaplasia

Vacuolization Cytoplasmic

Hyperplasia

Clear Cell Focus

Hepatodiaphragmatic Nodule

Inflammation

Proteinosis

Hyperplasia

Hyperplasia

Vacuolization Cytoplasmic

Infiltration Cellular Histiocyte

Erosion

Hyperplasia

Inflammation

Atrophy

Hyperplasia

Metaplasia Respiratory

Respiratory Metaplasia Atypical

Accumulation, Hyaline Droplet

Hyperplasia

Metaplasia

Vacuolization Cytoplasmic

Atrophy

Hematopoietic Cell Proliferation

Inflammation Chronic

Ulcer

Degeneration

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Tooth  
Trachea: Epithelium

Dysplasia  
Vacuolization Cytoplasmic

**FEMALE MICE**

**Organ**

Harderian Gland  
Kidney  
Larynx: Respiratory Epithelium

Larynx: Squamous Epithelium

Liver  
Lung

Lung: Alveolar Epithelium  
Lung: Alveolar/Bronchiolar Epithelium

Lung: Alveolus  
Lung: Bronchiole, Epithelium

Nose  
Nose: Olfactory Epithelium

Nose: Respiratory Epithelium

Nose: Squamous Epithelium  
Nose: Turbinate  
Ovary  
Pituitary Gland: Pars Distalis  
Stomach, Forestomach  
Trachea: Epithelium

**Morphology**

Hyperplasia  
Nephropathy  
Metaplasia  
Vacuolization Cytoplasmic  
Erosion  
Hyperplasia  
Necrosis  
Inflammation  
Proteinosis  
Hyperplasia  
Hyperplasia  
Vacuolization Cytoplasmic  
Infiltration Cellular Histiocyte  
Erosion  
Hyperplasia  
Inflammation  
Atrophy  
Hyperplasia  
Metaplasia Respiratory  
Respiratory Metaplasia Atypical  
Accumulation, Hyaline Droplet  
Hyperplasia  
Metaplasia  
Vacuolization Cytoplasmic  
Erosion  
Atrophy  
Cyst  
Hyperplasia  
Hyperplasia  
Vacuolization Cytoplasmic

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**SUMMARY OF STATISTICALLY SIGNIFICANT ( $P \leq .05$ ) RESULTS IN THE ANALYSIS OF COBALT**

Uterus

Angiectasis

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	6/50 (12%)	10/49 (20%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	6/47.49	10/44.04	2/41.48	1/40.58
POLY-3 PERCENT (g)	12.6%	22.7%	4.8%	2.5%
TERMINAL (d)	6/39 (15%)	9/31 (29%)	2/29 (7%)	1/25 (4%)
FIRST INCIDENCE	729 (T)	721	729 (T)	729 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.018N*	P=0.160	P=0.181N	P=0.086N
POLY 1.5	P=0.014N*	P=0.175	P=0.163N	P=0.073N
POLY 6	P=0.026N*	P=0.141	P=0.202N	P=0.104N
COCH-ARM / FISHERS	P=0.010N**	P=0.194	P=0.134N	P=0.056N
MAX-ISO-POLY-3	P=0.024N*	P=0.109	P=0.114N	P=0.050N*

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex Hypertrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	18/50 (36%)	9/49 (18%)	12/50 (24%)	2/50 (4%)
POLY-3 RATE (b)	18/48.23	9/44.01	12/41.78	2/40.58
POLY-3 PERCENT (g)	37.3%	20.5%	28.7%	4.9%
TERMINAL (d)	15/39 (39%)	9/31 (29%)	10/29 (35%)	2/25 (8%)
FIRST INCIDENCE	638	729 (T)	660	729 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.058N	P=0.261N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.049N*	P=0.209N	P<0.001N**
POLY 6	P<0.001N**	P=0.075N	P=0.324N	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.040N*	P=0.138N	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.041N*	P=0.210N	P<0.001N**

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Medulla Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	2/49 (4%)	0/50 (0%)	0/48 (0%)
POLY-3 RATE (b)	2/47.80	2/44.01	0/41.48	0/39.38
POLY-3 PERCENT (g)	4.2%	4.5%	0%	0%
TERMINAL (d)	1/39 (3%)	2/31 (7%)	0/29 (0%)	0/24 (0%)
FIRST INCIDENCE	646	729 (T)	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.104N	P=0.664	P=0.270N	P=0.283N
POLY 1.5	P=0.098N	P=0.674	P=0.258N	P=0.268N
POLY 6	P=0.113N	P=0.649	P=0.284N	P=0.303N
COCH-ARM / FISHERS	P=0.089N	P=0.684	P=0.247N	P=0.258N
MAX-ISO-POLY-3	P=0.165N	P=0.467	P=0.107N	P=0.117N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Brain: Meninges</b>				
<b>Infiltration Cellular Mononuclear Cell</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/47.49	0/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Epididymis</b>				
<b>Granuloma Sperm</b>				
<b>LESION RATES</b>				
<b>OVERALL (a)</b>	2/50 (4%)	0/49 (0%)	1/50 (2%)	0/50 (0%)
<b>POLY-3 RATE (b)</b>	2/47.49	0/44.01	1/41.78	0/40.58
<b>POLY-3 PERCENT (g)</b>	4.2%	0%	2.4%	0%
<b>TERMINAL (d)</b>	2/39 (5%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
<b>FIRST INCIDENCE</b>	729 (T)	---	647	---
<b>STATISTICAL TESTS</b>				
<b>POLY 3</b>	P=0.200N	P=0.255N	P=0.544N	P=0.274N
<b>POLY 1.5</b>	P=0.195N	P=0.249N	P=0.529N	P=0.259N
<b>POLY 6</b>	P=0.206N	P=0.263N	P=0.560N	P=0.293N
<b>COCH-ARM / FISHERS</b>	P=0.187N	P=0.253N	P=0.500N	P=0.247N
<b>MAX-ISO-POLY-3</b>	P=0.126N	P=0.091N	P=0.329N	P=0.111N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Eye</b>				
<b>Phthisis Bulbi</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/47 (0%)	0/46 (0%)	0/43 (0%)	0/45 (0%)
POLY-3 RATE (b)	0/45.00	0/41.49	0/36.94	0/36.44
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Eye: Cornea</b>				
<b>Inflammation Chronic</b>				
<b>LESION RATES</b>				
<b>OVERALL (a)</b>	4/47 (9%)	1/46 (2%)	1/43 (2%)	0/45 (0%)
<b>POLY-3 RATE (b)</b>	4/45.59	1/41.49	1/36.94	0/36.44
<b>POLY-3 PERCENT (g)</b>	8.8%	2.4%	2.7%	0%
<b>TERMINAL (d)</b>	2/39 (5%)	1/31 (3%)	1/29 (3%)	0/25 (0%)
<b>FIRST INCIDENCE</b>	646	729 (T)	729 (T)	---
<b>STATISTICAL TESTS</b>				
<b>POLY 3</b>	P=0.045N*	P=0.208N	P=0.249N	P=0.094N
<b>POLY 1.5</b>	P=0.042N*	P=0.198N	P=0.233N	P=0.082N
<b>POLY 6</b>	P=0.049N*	P=0.224N	P=0.266N	P=0.111N
<b>COCH-ARM / FISHERS</b>	P=0.038N*	P=0.187N	P=0.209N	P=0.064N
<b>MAX-ISO-POLY-3</b>	P=0.044N*	P=0.110N	P=0.145N	P=0.047N*

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TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/49 (2%)	0/48 (0%)	0/48 (0%)	2/50 (4%)
POLY-3 RATE (b)	1/46.55	0/43.39	0/40.95	2/40.58
POLY-3 PERCENT (g)	2.2%	0%	0%	4.9%
TERMINAL (d)	1/39 (3%)	0/31 (0%)	0/29 (0%)	2/25 (8%)
FIRST INCIDENCE	729 (T)	---	---	729 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.235	P=0.514N	P=0.525N	P=0.452
POLY 1.5	P=0.241	P=0.510N	P=0.518N	P=0.474
POLY 6	P=0.228	P=0.520N	P=0.534N	P=0.426
COCH-ARM / FISHERS	P=0.252	P=0.505N	P=0.505N	P=0.508
MAX-ISO-POLY-3	P=0.134	P=0.175N	P=0.188N	P=0.256

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TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Heart</b>				
<b>Cardiomyopathy</b>				
<b>LESION RATES</b>				
OVERALL (a)	13/50 (26%)	5/50 (10%)	12/50 (24%)	8/50 (16%)
POLY-3 RATE (b)	13/47.97	5/44.65	12/42.24	8/40.87
POLY-3 PERCENT (g)	27.1%	11.2%	28.4%	19.6%
TERMINAL (d)	11/39 (28%)	4/31 (13%)	9/29 (31%)	7/25 (28%)
FIRST INCIDENCE	646	618	631	649
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.420N	P=0.045N*	P=0.539	P=0.281N
POLY 1.5	P=0.367N	P=0.039N*	P=0.590	P=0.230N
POLY 6	P=0.488N	P=0.054N	P=0.488	P=0.353N
COCH-ARM / FISHERS	P=0.292N	P=0.033N*	P=0.500N	P=0.163N
MAX-ISO-POLY-3	P=0.339N	P=0.029N*	P=0.447	P=0.221N

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TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Islets, Pancreatic Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/49 (4%)	3/47 (6%)	0/50 (0%)	2/50 (4%)
POLY-3 RATE (b)	2/46.78	3/42.46	0/41.48	2/40.58
POLY-3 PERCENT (g)	4.3%	7.1%	0%	4.9%
TERMINAL (d)	2/39 (5%)	3/31 (10%)	0/29 (0%)	2/25 (8%)
FIRST INCIDENCE	729 (T)	729 (T)	---	729 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.511N	P=0.456	P=0.265N	P=0.641
POLY 1.5	P=0.490N	P=0.467	P=0.253N	P=0.665
POLY 6	P=0.536N	P=0.441	P=0.278N	P=0.610
COCH-ARM / FISHERS	P=0.459N	P=0.480	P=0.242N	P=0.684N
MAX-ISO-POLY-3	P=0.395N	P=0.292	P=0.103N	P=0.445

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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Kidney Infarct</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	4/49 (8%)	1/49 (2%)	3/50 (6%)
POLY-3 RATE (b)	2/47.82	4/45.29	1/42.18	3/40.79
POLY-3 PERCENT (g)	4.2%	8.8%	2.4%	7.4%
TERMINAL (d)	1/39 (3%)	0/31 (0%)	0/29 (0%)	1/25 (4%)
FIRST INCIDENCE	638	551	394	698
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.464	P=0.313	P=0.544N	P=0.428
POLY 1.5	P=0.496	P=0.320	P=0.529N	P=0.456
POLY 6	P=0.426	P=0.303	P=0.560N	P=0.394
COCH-ARM / FISHERS	P=0.546	P=0.329	P=0.508N	P=0.500
MAX-ISO-POLY-3	P=0.446	P=0.187	P=0.327N	P=0.277

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Kidney Nephropathy</b>				
<b>LESION RATES</b>				
OVERALL (a)	46/50 (92%)	44/49 (90%)	42/49 (86%)	37/50 (74%)
POLY-3 RATE (b)	46/49.24	44/47.72	42/46.45	37/44.87
POLY-3 PERCENT (g)	93.4%	92.2%	90.4%	82.5%
TERMINAL (d)	38/39 (97%)	30/31 (97%)	28/29 (97%)	23/25 (92%)
FIRST INCIDENCE	561	571	361	425
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.030N*	P=0.569N	P=0.427N	P=0.067N
POLY 1.5	P=0.015N*	P=0.534N	P=0.344N	P=0.038N*
POLY 6	P=0.072N	P=0.608N	P=0.541N	P=0.132N
COCH-ARM / FISHERS	P=0.005N**	P=0.487N	P=0.251N	P=0.016N*
MAX-ISO-POLY-3	P=0.046N*	P=0.399N	P=0.279N	P=0.037N*



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TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx Inflammation</b>				
<b>LESION RATES</b>				
OVERALL (a)	7/48 (15%)	2/47 (4%)	2/49 (4%)	4/50 (8%)
POLY-3 RATE (b)	7/45.96	2/42.86	2/41.62	4/41.07
POLY-3 PERCENT (g)	15.2%	4.7%	4.8%	9.7%
TERMINAL (d)	6/38 (16%)	0/30 (0%)	1/29 (3%)	2/25 (8%)
FIRST INCIDENCE	682	611	652	635
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.297N	P=0.096N	P=0.105N	P=0.329N
POLY 1.5	P=0.280N	P=0.091N	P=0.092N	P=0.292N
POLY 6	P=0.318N	P=0.104N	P=0.119N	P=0.377N
COCH-ARM / FISHERS	P=0.253N	P=0.084N	P=0.075N	P=0.239N
MAX-ISO-POLY-3	P=0.134N	P=0.053N	P=0.063N	P=0.237N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Respiratory Epithelium Metaplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	7/48 (15%)	47/47 (100%)	49/49 (100%)	49/50 (98%)
POLY-3 RATE (b)	7/45.78	47/47.00	49/49.00	49/49.66
POLY-3 PERCENT (g)	15.3%	100%	100%	98.7%
TERMINAL (d)	7/38 (18%)	30/30 (100%)	29/29 (100%)	25/25 (100%)
FIRST INCIDENCE	729 (T)	551	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Respiratory Epithelium</b>				
<b>Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/48 (0%)	20/47 (43%)	24/49 (49%)	32/50 (64%)
POLY-3 RATE (b)	0/45.78	20/45.52	24/44.01	32/45.46
POLY-3 PERCENT (g)	0%	43.9%	54.5%	70.4%
TERMINAL (d)	0/38 (0%)	11/30 (37%)	14/29 (48%)	20/25 (80%)
FIRST INCIDENCE	---	551	460	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Squamous Epithelium Erosion</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/48 (2%)	3/47 (6%)	0/49 (0%)	1/50 (2%)
POLY-3 RATE (b)	1/46.09	3/43.04	0/41.34	1/41.30
POLY-3 PERCENT (g)	2.2%	7%	0%	2.4%
TERMINAL (d)	0/38 (0%)	0/30 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	646	611	---	476
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.442N	P=0.281	P=0.522N	P=0.735
POLY 1.5	P=0.422N	P=0.288	P=0.512N	P=0.749
POLY 6	P=0.468N	P=0.271	P=0.533N	P=0.717
COCH-ARM / FISHERS	P=0.393N	P=0.301	P=0.495N	P=0.742N
MAX-ISO-POLY-3	P=0.316N	P=0.144	P=0.186N	P=0.470

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Squamous Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/48 (4%)	5/47 (11%)	5/49 (10%)	8/50 (16%)
POLY-3 RATE (b)	2/46.14	5/42.98	5/42.88	8/42.19
POLY-3 PERCENT (g)	4.3%	11.6%	11.7%	19%
TERMINAL (d)	0/38 (0%)	2/30 (7%)	1/29 (3%)	4/25 (16%)
FIRST INCIDENCE	646	617	361	476
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.027*	P=0.188	P=0.187	P=0.032*
POLY 1.5	P=0.034*	P=0.197	P=0.201	P=0.039*
POLY 6	P=0.020*	P=0.177	P=0.173	P=0.024*
COCH-ARM / FISHERS	P=0.049*	P=0.209	P=0.226	P=0.053
MAX-ISO-POLY-3	P=0.030*	P=0.107	P=0.109	P=0.018*

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Basophilic Focus</b>				
<b>LESION RATES</b>				
OVERALL (a)	4/50 (8%)	4/50 (8%)	6/50 (12%)	4/50 (8%)
POLY-3 RATE (b)	4/48.04	4/44.26	6/42.23	4/41.10
POLY-3 PERCENT (g)	8.3%	9%	14.2%	9.7%
TERMINAL (d)	3/39 (8%)	4/31 (13%)	5/29 (17%)	3/25 (12%)
FIRST INCIDENCE	561	729 (T)	460	571
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.421	P=0.597	P=0.292	P=0.555
POLY 1.5	P=0.465	P=0.617	P=0.320	P=0.590
POLY 6	P=0.369	P=0.572	P=0.263	P=0.511
COCH-ARM / FISHERS	P=0.533	P=0.643N	P=0.370	P=0.643N
MAX-ISO-POLY-3	P=0.477	P=0.453	P=0.204	P=0.414

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Clear Cell Focus</b>				
<b>LESION RATES</b>				
OVERALL (a)	17/50 (34%)	17/50 (34%)	8/50 (16%)	0/50 (0%)
POLY-3 RATE (b)	17/47.67	17/44.26	8/41.48	0/40.58
POLY-3 PERCENT (g)	35.7%	38.4%	19.3%	0%
TERMINAL (d)	16/39 (41%)	17/31 (55%)	8/29 (28%)	0/25 (0%)
FIRST INCIDENCE	684	729 (T)	729 (T)	---
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.477	P=0.067N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.523	P=0.051N	P<0.001N**
POLY 6	P<0.001N**	P=0.415	P=0.089N	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.583N	P=0.032N*	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.393	P=0.051N	P<0.001N**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Eosinophilic Focus</b>				
<b>LESION RATES</b>				
OVERALL (a)	6/50 (12%)	5/50 (10%)	4/50 (8%)	2/50 (4%)
POLY-3 RATE (b)	6/47.49	5/44.80	4/41.74	2/40.84
POLY-3 PERCENT (g)	12.6%	11.2%	9.6%	4.9%
TERMINAL (d)	6/39 (15%)	2/31 (7%)	3/29 (10%)	1/25 (4%)
FIRST INCIDENCE	729 (T)	589	660	660
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.136N	P=0.541N	P=0.453N	P=0.187N
POLY 1.5	P=0.118N	P=0.524N	P=0.423N	P=0.165N
POLY 6	P=0.161N	P=0.562N	P=0.483N	P=0.217N
COCH-ARM / FISHERS	P=0.092N	P=0.500N	P=0.370N	P=0.134N
MAX-ISO-POLY-3	P=0.205N	P=0.415N	P=0.335N	P=0.121N



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatodiaphragmatic Nodule</b>				
<b>LESION RATES</b>				
<b>OVERALL (a)</b>	0/50 (0%)	3/50 (6%)	0/50 (0%)	3/50 (6%)
<b>POLY-3 RATE (b)</b>	0/47.49	3/44.65	0/41.48	3/41.21
<b>POLY-3 PERCENT (g)</b>	0%	6.7%	0%	7.3%
<b>TERMINAL (d)</b>	0/39 (0%)	1/31 (3%)	0/29 (0%)	1/25 (4%)
<b>FIRST INCIDENCE</b>	---	639	---	586
<b>STATISTICAL TESTS</b>				
<b>POLY 3</b>	P=0.125	P=0.108	(e)	P=0.095
<b>POLY 1.5</b>	P=0.139	P=0.113	(e)	P=0.104
<b>POLY 6</b>	P=0.111	P=0.103	(e)	P=0.086
<b>COCH-ARM / FISHERS</b>	P=0.163	P=0.121	(e)	P=0.121
<b>MAX-ISO-POLY-3</b>	P=0.058	P=0.038*	(e)	P=0.037*

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Necrosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	3/50 (6%)	1/50 (2%)	1/50 (2%)
POLY-3 RATE (b)	2/47.76	3/45.47	1/41.63	1/40.58
POLY-3 PERCENT (g)	4.2%	6.6%	2.4%	2.5%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	1/25 (4%)
FIRST INCIDENCE	682	457	692	729 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.336N	P=0.478	P=0.548N	P=0.556N
POLY 1.5	P=0.314N	P=0.488	P=0.530N	P=0.534N
POLY 6	P=0.366N	P=0.464	P=0.566N	P=0.584N
COCH-ARM / FISHERS	P=0.279N	P=0.500	P=0.500N	P=0.500N
MAX-ISO-POLY-3	P=0.418N	P=0.308	P=0.332N	P=0.341N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Tension Lipidosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	2/47.49	0/44.26	2/42.34	0/40.58
POLY-3 PERCENT (g)	4.2%	0%	4.7%	0%
TERMINAL (d)	2/39 (5%)	0/31 (0%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	---	382	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.275N	P=0.253N	P=0.652	P=0.274N
POLY 1.5	P=0.264N	P=0.247N	P=0.668	P=0.259N
POLY 6	P=0.290N	P=0.262N	P=0.634	P=0.293N
COCH-ARM / FISHERS	P=0.247N	P=0.247N	P=0.691N	P=0.247N
MAX-ISO-POLY-3	P=0.176N	P=0.091N	P=0.455	P=0.111N

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung Inflammation</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	2/49 (4%)	6/50 (12%)	16/50 (32%)
POLY-3 RATE (b)	1/47.49	2/44.27	6/41.93	16/42.50
POLY-3 PERCENT (g)	2.1%	4.5%	14.3%	37.7%
TERMINAL (d)	1/39 (3%)	1/31 (3%)	5/29 (17%)	8/25 (32%)
FIRST INCIDENCE	729 (T)	660	597	575
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P=0.475	P=0.038*	P<0.001**
POLY 1.5	P<0.001**	P=0.483	P=0.044*	P<0.001**
POLY 6	P<0.001**	P=0.465	P=0.033*	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.492	P=0.056	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P=0.266	P=0.020*	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung Proteinosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	46/49 (94%)	49/50 (98%)	50/50 (100%)
POLY-3 RATE (b)	2/47.49	46/48.57	49/49.14	50/50.00
POLY-3 PERCENT (g)	4.2%	94.7%	99.7%	100%
TERMINAL (d)	2/39 (5%)	30/31 (97%)	29/29 (100%)	25/25 (100%)
FIRST INCIDENCE	729 (T)	551	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolar Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	4/50 (8%)	29/49 (59%)	24/50 (48%)	43/50 (86%)
POLY-3 RATE (b)	4/47.49	29/45.27	24/43.66	43/47.53
POLY-3 PERCENT (g)	8.4%	64.1%	55%	90.5%
TERMINAL (d)	4/39 (10%)	23/31 (74%)	18/29 (62%)	24/25 (96%)
FIRST INCIDENCE	729 (T)	618	460	476
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolar/Bronchiolar Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	46/49 (94%)	49/50 (98%)	50/50 (100%)
POLY-3 RATE (b)	0/47.49	46/48.48	49/49.14	50/50.00
POLY-3 PERCENT (g)	0%	94.9%	99.7%	100%
TERMINAL (d)	0/39 (0%)	29/31 (94%)	29/29 (100%)	25/25 (100%)
FIRST INCIDENCE	---	551	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolar/Bronchiolar Epithelium Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	49/49 (100%)	47/50 (94%)	48/50 (96%)
POLY-3 RATE (b)	0/47.49	49/49.00	47/48.03	48/50.00
POLY-3 PERCENT (g)	0%	100%	97.9%	96%
TERMINAL (d)	0/39 (0%)	31/31 (100%)	29/29 (100%)	23/25 (92%)
FIRST INCIDENCE	---	551	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolus Infiltration Cellular Histiocyte</b>				
<b>LESION RATES</b>				
OVERALL (a)	10/50 (20%)	49/49 (100%)	48/50 (96%)	48/50 (96%)
POLY-3 RATE (b)	10/48.10	49/49.00	48/48.78	48/50.00
POLY-3 PERCENT (g)	20.8%	100%	98.4%	96%
TERMINAL (d)	8/39 (21%)	31/31 (100%)	29/29 (100%)	23/25 (92%)
FIRST INCIDENCE	646	551	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Bronchiole, Epithelium Erosion</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	4/49 (8%)	10/50 (20%)	2/50 (4%)
POLY-3 RATE (b)	0/47.49	4/44.03	10/45.02	2/41.52
POLY-3 PERCENT (g)	0%	9.1%	22.2%	4.8%
TERMINAL (d)	0/39 (0%)	3/31 (10%)	4/29 (14%)	0/25 (0%)
FIRST INCIDENCE	---	723	394	586
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.182	P=0.051	P<0.001**	P=0.209
POLY 1.5	P=0.222	P=0.054	P<0.001**	P=0.219
POLY 6	P=0.140	P=0.047*	P<0.001**	P=0.196
COCH-ARM / FISHERS	P=0.303	P=0.056	P<0.001**	P=0.247
MAX-ISO-POLY-3	P=0.021*	P=0.019*	P<0.001**	P=0.076

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Bronchiole, Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	4/50 (8%)	7/49 (14%)	9/50 (18%)	11/50 (22%)
POLY-3 RATE (b)	4/47.67	7/44.48	9/44.15	11/42.58
POLY-3 PERCENT (g)	8.4%	15.7%	20.4%	25.8%
TERMINAL (d)	3/39 (8%)	3/31 (10%)	4/29 (14%)	4/25 (16%)
FIRST INCIDENCE	684	660	394	554
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.018*	P=0.222	P=0.088	P=0.024*
POLY 1.5	P=0.023*	P=0.235	P=0.098	P=0.031*
POLY 6	P=0.013*	P=0.207	P=0.077	P=0.019*
COCH-ARM / FISHERS	P=0.036*	P=0.251	P=0.117	P=0.045*
MAX-ISO-POLY-3	P=0.026*	P=0.145	P=0.055	P=0.016*

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lymph Node: Iliac Ectasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/2 (0%)	0/0 (0%)	0/1 (0%)	0/1 (0%)
POLY-3 RATE (b)	0/1.95	0/0.00	0/0.64	0/0.03
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/1 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lymph Node: Renal Ectasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/2 (0%)	0/0 (0%)	0/1 (0%)	0/1 (0%)
POLY-3 RATE (b)	0/1.95	0/0.00	0/0.64	0/0.03
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/1 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Mesentery: Fat Necrosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	5/5 (100%)	4/5 (80%)	5/5 (100%)	3/3 (100%)
POLY-3 RATE (b)	5/5.00	4/4.97	5/5.00	3/3.00
POLY-3 PERCENT (g)	100%	80.5%	100%	100%
TERMINAL (d)	4/4 (100%)	3/3 (100%)	0/0 (0%)	2/2 (100%)
FIRST INCIDENCE	684	631	533	617
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.652	P=0.512N	(e)	(e)
POLY 1.5	P=0.648	P=0.506N	(e)	(e)
POLY 6	P=0.662	P=0.525N	(e)	(e)
COCH-ARM / FISHERS	P=0.649	P=0.500N	(e)	(e)
MAX-ISO-POLY-3	P=0.486	P=0.160N	(e)	(e)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose Inflammation</b>				
<b>LESION RATES</b>				
OVERALL (a)	16/50 (32%)	32/49 (65%)	49/50 (98%)	50/50 (100%)
POLY-3 RATE (b)	16/48.26	32/46.50	49/49.39	50/50.00
POLY-3 PERCENT (g)	33.2%	68.8%	99.2%	100%
TERMINAL (d)	13/39 (33%)	21/31 (68%)	29/29 (100%)	25/25 (100%)
FIRST INCIDENCE	646	611	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium Atrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	3/50 (6%)	46/49 (94%)	42/50 (84%)	31/50 (62%)
POLY-3 RATE (b)	3/47.68	46/48.94	42/47.92	31/48.56
POLY-3 PERCENT (g)	6.3%	94%	87.6%	63.8%
TERMINAL (d)	2/39 (5%)	29/31 (94%)	26/29 (90%)	15/25 (60%)
FIRST INCIDENCE	682	551	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	25/49 (51%)	17/50 (34%)	8/50 (16%)
POLY-3 RATE (b)	0/47.49	25/46.07	17/43.11	8/44.09
POLY-3 PERCENT (g)	0%	54.3%	39.4%	18.1%
TERMINAL (d)	0/39 (0%)	17/31 (55%)	11/29 (38%)	2/25 (8%)
FIRST INCIDENCE	---	551	394	227
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.241	P<0.001**	P<0.001**	P=0.002**
POLY 1.5	P=0.301	P<0.001**	P<0.001**	P=0.003**
POLY 6	P=0.174	P<0.001**	P<0.001**	P=0.002**
COCH-ARM / FISHERS	P=0.399	P<0.001**	P<0.001**	P=0.003**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium Metaplasia Respiratory</b>				
<b>LESION RATES</b>				
OVERALL (a)	5/50 (10%)	24/49 (49%)	44/50 (88%)	50/50 (100%)
POLY-3 RATE (b)	5/47.67	24/44.85	44/47.66	50/50.00
POLY-3 PERCENT (g)	10.5%	53.5%	92.3%	100%
TERMINAL (d)	4/39 (10%)	19/31 (61%)	26/29 (90%)	25/25 (100%)
FIRST INCIDENCE	684	618	394	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium</b>				
<b>Respiratory Metaplasia Atypical</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	14/49 (29%)	9/50 (18%)	1/50 (2%)
POLY-3 RATE (b)	0/47.49	14/45.40	9/41.77	1/40.63
POLY-3 PERCENT (g)	0%	30.8%	21.6%	2.5%
TERMINAL (d)	0/39 (0%)	8/31 (26%)	8/29 (28%)	0/25 (0%)
FIRST INCIDENCE	---	571	652	716
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.396N	P<0.001**	P<0.001**	P=0.469
POLY 1.5	P=0.318N	P<0.001**	P<0.001**	P=0.481
POLY 6	P=0.501N	P<0.001**	P<0.001**	P=0.454
COCH-ARM / FISHERS	P=0.227N	P<0.001**	P<0.001**	P=0.500
MAX-ISO-POLY-3	P=0.008**	P<0.001**	P<0.001**	P=0.158

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Accumulation, Hyaline Droplet</b>				
<b>LESION RATES</b>				
OVERALL (a)	13/50 (26%)	29/49 (59%)	29/50 (58%)	7/50 (14%)
POLY-3 RATE (b)	13/48.65	29/46.33	29/46.00	7/42.07
POLY-3 PERCENT (g)	26.7%	62.6%	63.1%	16.6%
TERMINAL (d)	10/39 (26%)	18/31 (58%)	17/29 (59%)	2/25 (8%)
FIRST INCIDENCE	561	571	460	562
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.086N	P<0.001**	P<0.001**	P=0.184N
POLY 1.5	P=0.045N*	P<0.001**	P<0.001**	P=0.150N
POLY 6	P=0.163N	P<0.001**	P<0.001**	P=0.230N
COCH-ARM / FISHERS	P=0.021N*	P<0.001**	P<0.001**	P=0.105N
MAX-ISO-POLY-3	P<0.001N**	P<0.001**	P<0.001**	P=0.140N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	44/50 (88%)	41/49 (84%)	36/50 (72%)	19/50 (38%)
POLY-3 RATE (b)	44/49.21	41/48.04	36/45.25	19/43.31
POLY-3 PERCENT (g)	89.4%	85.4%	79.6%	43.9%
TERMINAL (d)	36/39 (92%)	26/31 (84%)	24/29 (83%)	12/25 (48%)
FIRST INCIDENCE	561	551	382	537
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.378N	P=0.133N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.376N	P=0.086N	P<0.001N**
POLY 6	P<0.001N**	P=0.379N	P=0.184N	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.371N	P=0.039N*	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.267N	P=0.087N	P<0.001N**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Metaplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	3/50 (6%)	45/49 (92%)	35/50 (70%)	33/50 (66%)
POLY-3 RATE (b)	3/47.67	45/49.00	35/46.74	33/46.66
POLY-3 PERCENT (g)	6.3%	91.8%	74.9%	70.7%
TERMINAL (d)	2/39 (5%)	27/31 (87%)	20/29 (69%)	19/25 (76%)
FIRST INCIDENCE	684	551	394	425
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium            Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	41/49 (84%)	39/50 (78%)	37/50 (74%)
POLY-3 RATE (b)	0/47.49	41/47.80	39/48.72	37/47.74
POLY-3 PERCENT (g)	0%	85.8%	80%	77.5%
TERMINAL (d)	0/39 (0%)	27/31 (87%)	21/29 (72%)	21/25 (84%)
FIRST INCIDENCE	---	589	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Squamous Epithelium</b>				
<b>Erosion</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	1/49 (2%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	1/47.49	1/44.13	2/42.07	0/40.58
POLY-3 PERCENT (g)	2.1%	2.3%	4.8%	0%
TERMINAL (d)	1/39 (3%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	698	647	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.419N	P=0.744	P=0.458	P=0.531N
POLY 1.5	P=0.398N	P=0.749	P=0.473	P=0.519N
POLY 6	P=0.446N	P=0.737	P=0.444	P=0.546N
COCH-ARM / FISHERS	P=0.365N	P=0.747	P=0.500	P=0.500N
MAX-ISO-POLY-3	P=0.313N	P=0.479	P=0.258	P=0.197N



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Turbinate Atrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	3/50 (6%)	25/49 (51%)	49/50 (98%)	50/50 (100%)
POLY-3 RATE (b)	3/47.67	25/45.03	49/49.14	50/50.00
POLY-3 PERCENT (g)	6.3%	55.5%	99.7%	100%
TERMINAL (d)	2/39 (5%)	19/31 (61%)	29/29 (100%)	25/25 (100%)
FIRST INCIDENCE	684	618	361	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pancreas</b>				
<b>Atrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	0/47 (0%)	1/50 (2%)	1/50 (2%)
POLY-3 RATE (b)	0/47.49	0/42.46	1/41.51	1/40.87
POLY-3 PERCENT (g)	0%	0%	2.4%	2.5%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	---	723	649
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pituitary Gland: Pars Distalis</b>				
<b>Angiectasis</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/47 (0%)	0/49 (0%)	0/48 (0%)	0/48 (0%)
POLY-3 RATE (b)	0/45.09	0/44.01	0/40.34	0/39.09
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/38 (0%)	0/31 (0%)	0/28 (0%)	0/24 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pituitary Gland: Pars Distalis Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/47 (2%)	2/49 (4%)	1/48 (2%)	0/48 (0%)
POLY-3 RATE (b)	1/45.09	2/44.01	1/40.34	0/39.09
POLY-3 PERCENT (g)	2.2%	4.5%	2.5%	0%
TERMINAL (d)	1/38 (3%)	2/31 (7%)	1/28 (4%)	0/24 (0%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.291N	P=0.492	P=0.735	P=0.528N
POLY 1.5	P=0.272N	P=0.502	P=0.747	P=0.516N
POLY 6	P=0.316N	P=0.477	P=0.721	P=0.544N
COCH-ARM / FISHERS	P=0.244N	P=0.516	P=0.747N	P=0.495N
MAX-ISO-POLY-3	P=0.281N	P=0.278	P=0.469	P=0.194N

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
<b>Inflammation Chronic</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	2/49 (4%)
POLY-3 RATE (b)	1/47.49	1/44.26	2/41.87	2/39.65
POLY-3 PERCENT (g)	2.1%	2.3%	4.8%	5%
TERMINAL (d)	1/39 (3%)	1/31 (3%)	0/29 (0%)	1/24 (4%)
FIRST INCIDENCE	729 (T)	729 (T)	647	712
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.273	P=0.745	P=0.456	P=0.438
POLY 1.5	P=0.295	P=0.751	P=0.472	P=0.459
POLY 6	P=0.247	P=0.736	P=0.442	P=0.411
COCH-ARM / FISHERS	P=0.330	P=0.753N	P=0.500	P=0.492
MAX-ISO-POLY-3	P=0.398	P=0.480	P=0.257	P=0.247

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Spleen</b>				
<b>Hematopoietic Cell Proliferation</b>				
<b>LESION RATES</b>				
OVERALL (a)	5/50 (10%)	0/48 (0%)	0/49 (0%)	0/48 (0%)
POLY-3 RATE (b)	5/47.64	0/43.07	0/41.34	0/38.76
POLY-3 PERCENT (g)	10.5%	0%	0%	0%
TERMINAL (d)	4/39 (10%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	692	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.008N**	P=0.040N*	P=0.044N*	P=0.052N
POLY 1.5	P=0.008N**	P=0.037N*	P=0.040N*	P=0.044N*
POLY 6	P=0.008N**	P=0.044N*	P=0.050N*	P=0.064N
COCH-ARM / FISHERS	P=0.009N**	P=0.031N*	P=0.030N*	P=0.031N*
MAX-ISO-POLY-3	P=0.005N**	P=0.016N*	P=0.021N*	P=0.027N*

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Forestomach Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	2/48 (4%)	2/50 (4%)	4/50 (8%)
POLY-3 RATE (b)	1/47.49	2/43.39	2/41.66	4/41.59
POLY-3 PERCENT (g)	2.1%	4.6%	4.8%	9.6%
TERMINAL (d)	1/39 (3%)	2/31 (7%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	729 (T)	683	617
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.088	P=0.469	P=0.454	P=0.141
POLY 1.5	P=0.098	P=0.476	P=0.471	P=0.155
POLY 6	P=0.077	P=0.458	P=0.438	P=0.127
COCH-ARM / FISHERS	P=0.117	P=0.485	P=0.500	P=0.181
MAX-ISO-POLY-3	P=0.104	P=0.261	P=0.257	P=0.074

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Forestomach Inflammation Chronic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	1/48 (2%)	0/50 (0%)	3/50 (6%)
POLY-3 RATE (b)	0/47.49	1/43.39	0/41.48	3/41.32
POLY-3 PERCENT (g)	0%	2.3%	0%	7.3%
TERMINAL (d)	0/39 (0%)	1/31 (3%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	729 (T)	---	617
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.036*	P=0.482	(e)	P=0.096
POLY 1.5	P=0.039*	P=0.486	(e)	P=0.104
POLY 6	P=0.032*	P=0.476	(e)	P=0.087
COCH-ARM / FISHERS	P=0.045*	P=0.490	(e)	P=0.121
MAX-ISO-POLY-3	P=0.023*	P=0.156	(e)	P=0.038*



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Forestomach Ulcer</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	5/48 (10%)	3/50 (6%)	1/50 (2%)
POLY-3 RATE (b)	1/47.82	5/44.48	3/42.14	1/41.12
POLY-3 PERCENT (g)	2.1%	11.2%	7.1%	2.4%
TERMINAL (d)	0/39 (0%)	1/31 (3%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	638	589	652	562
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.464N	P=0.086	P=0.262	P=0.726
POLY 1.5	P=0.424N	P=0.089	P=0.277	P=0.740
POLY 6	P=0.513N	P=0.082	P=0.248	P=0.708
COCH-ARM / FISHERS	P=0.365N	P=0.093	P=0.309	P=0.753N
MAX-ISO-POLY-3	P=0.281	P=0.040*	P=0.140	P=0.459

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Glandular Ulcer</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/48 (0%)	1/46 (2%)	0/48 (0%)	1/49 (2%)
POLY-3 RATE (b)	0/45.84	1/41.92	0/40.95	1/39.73
POLY-3 PERCENT (g)	0%	2.4%	0%	2.5%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	611	---	712
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Testes: Germinal Epithelium Degeneration</b>				
<b>LESION RATES</b>				
OVERALL (a)	9/50 (18%)	14/49 (29%)	8/50 (16%)	21/50 (42%)
POLY-3 RATE (b)	9/47.59	14/46.06	8/42.65	21/43.71
POLY-3 PERCENT (g)	18.9%	30.4%	18.8%	48.1%
TERMINAL (d)	8/39 (21%)	6/31 (19%)	4/29 (14%)	11/25 (44%)
FIRST INCIDENCE	704	589	460	425
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.003**	P=0.146	P=0.598N	P=0.002**
POLY 1.5	P=0.004**	P=0.150	P=0.564N	P=0.003**
POLY 6	P=0.002**	P=0.142	P=0.579	P<0.001**
COCH-ARM / FISHERS	P=0.009**	P=0.157	P=0.500N	P=0.008**
MAX-ISO-POLY-3	P=0.002**	P=0.100	P=0.492N	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Tooth Dysplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	8/8 (100%)	1/2 (50%)	2/2 (100%)	1/1 (100%)
POLY-3 RATE (b)	8/8.00	1/1.61	2/2.00	1/1.00
POLY-3 PERCENT (g)	100%	62.3%	100%	100%
TERMINAL (d)	8/8 (100%)	1/1 (100%)	2/2 (100%)	1/1 (100%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	729 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.919N	P=0.490N	(e)	(e)
POLY 1.5	P=0.852N	P=0.293N	(e)	(e)
POLY 6	P=0.992N	P=0.931N	(e)	(e)
COCH-ARM / FISHERS	P=0.750N	P=0.200N	(e)	(e)
MAX-ISO-POLY-3	P=0.425N	P=0.027N*	(e)	(e)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Trachea: Epithelium Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/48 (0%)	14/47 (30%)	31/48 (65%)	37/50 (74%)
POLY-3 RATE (b)	0/45.96	14/43.48	31/42.99	37/46.09
POLY-3 PERCENT (g)	0%	32.2%	72.1%	80.3%
TERMINAL (d)	0/39 (0%)	8/30 (27%)	20/28 (71%)	22/25 (88%)
FIRST INCIDENCE	---	617	460	227
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

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Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	1/50 (2%)	1/50 (2%)	3/48 (6%)
POLY-3 RATE (b)	1/44.09	1/44.40	1/41.56	3/38.93
POLY-3 PERCENT (g)	2.3%	2.3%	2.4%	7.7%
TERMINAL (d)	0/36 (0%)	1/35 (3%)	1/27 (4%)	3/26 (12%)
FIRST INCIDENCE	649	731 (T)	731 (T)	731 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.134	P=0.759N	P=0.748	P=0.262
POLY 1.5	P=0.144	P=0.758N	P=0.756	P=0.277
POLY 6	P=0.121	P=0.759	P=0.732	P=0.238
COCH-ARM / FISHERS	P=0.152	P=0.753N	P=0.753N	P=0.293
MAX-ISO-POLY-3	P=0.164	P=0.497N	P=0.483	P=0.136

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex Hypertrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/48 (0%)
POLY-3 RATE (b)	0/43.79	2/44.40	0/41.56	0/38.93
POLY-3 PERCENT (g)	0%	4.5%	0%	0%
TERMINAL (d)	0/36 (0%)	2/35 (6%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	731 (T)	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.427N	P=0.240	(e)	(e)
POLY 1.5	P=0.417N	P=0.241	(e)	(e)
POLY 6	P=0.446N	P=0.238	(e)	(e)
COCH-ARM / FISHERS	P=0.413N	P=0.247	(e)	(e)
MAX-ISO-POLY-3	P=0.294N	P=0.079	(e)	(e)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Medulla Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/49 (0%)	1/48 (2%)
POLY-3 RATE (b)	2/44.07	1/44.40	0/41.03	1/39.11
POLY-3 PERCENT (g)	4.5%	2.3%	0%	2.6%
TERMINAL (d)	1/36 (3%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	655	731 (T)	---	684
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.389N	P=0.497N	P=0.253N	P=0.542N
POLY 1.5	P=0.384N	P=0.496N	P=0.246N	P=0.527N
POLY 6	P=0.398N	P=0.502N	P=0.267N	P=0.564N
COCH-ARM / FISHERS	P=0.378N	P=0.500N	P=0.253N	P=0.515N
MAX-ISO-POLY-3	P=0.285N	P=0.279N	P=0.090N	P=0.323N



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3

---

Brain: Meninges  
Infiltration Cellular Mononuclear Cell

**LESION RATES**

OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	2/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	4.5%	0%	0%
TERMINAL (d)	0/36 (0%)	2/35 (6%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	731 (T)	---	---

**STATISTICAL TESTS**

POLY 3	P=0.422N	P=0.240	(e)	(e)
POLY 1.5	P=0.411N	P=0.241	(e)	(e)
POLY 6	P=0.442N	P=0.238	(e)	(e)
COCH-ARM / FISHERS	P=0.405N	P=0.247	(e)	(e)
MAX-ISO-POLY-3	P=0.290N	P=0.079	(e)	(e)

---

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Eye</b>				
<b>Phthisis Bulbi</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/46 (0%)	2/46 (4%)	0/48 (0%)	0/48 (0%)
POLY-3 RATE (b)	0/41.40	2/40.79	0/40.44	0/38.45
POLY-3 PERCENT (g)	0%	4.9%	0%	0%
TERMINAL (d)	0/36 (0%)	2/34 (6%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	731 (T)	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.420N	P=0.234	(e)	(e)
POLY 1.5	P=0.406N	P=0.236	(e)	(e)
POLY 6	P=0.443N	P=0.229	(e)	(e)
COCH-ARM / FISHERS	P=0.395N	P=0.247	(e)	(e)
MAX-ISO-POLY-3	P=0.281N	P=0.076	(e)	(e)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Eye: Cornea</b>				
<b>Inflammation Chronic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/46 (0%)	2/46 (4%)	1/48 (2%)	0/48 (0%)
POLY-3 RATE (b)	0/41.40	2/40.99	1/40.75	0/38.45
POLY-3 PERCENT (g)	0%	4.9%	2.5%	0%
TERMINAL (d)	0/36 (0%)	1/34 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	681	646	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.490N	P=0.235	P=0.497	(e)
POLY 1.5	P=0.469N	P=0.237	P=0.504	(e)
POLY 6	P=0.521N	P=0.231	P=0.486	(e)
COCH-ARM / FISHERS	P=0.448N	P=0.247	P=0.511	(e)
MAX-ISO-POLY-3	P=0.351	P=0.076	P=0.161	(e)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	4/49 (8%)	1/49 (2%)	1/49 (2%)	0/50 (0%)
POLY-3 RATE (b)	4/44.61	1/43.66	1/41.44	0/39.95
POLY-3 PERCENT (g)	9%	2.3%	2.4%	0%
TERMINAL (d)	2/36 (6%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	400	731 (T)	587	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.038N*	P=0.185N	P=0.201N	P=0.075N
POLY 1.5	P=0.035N*	P=0.182N	P=0.190N	P=0.067N
POLY 6	P=0.042N*	P=0.189N	P=0.221N	P=0.089N
COCH-ARM / FISHERS	P=0.033N*	P=0.181N	P=0.181N	P=0.056N
MAX-ISO-POLY-3	P=0.027N*	P=0.090N	P=0.105N	P=0.032N*

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Heart</b>				
<b>Cardiomyopathy</b>				
<b>LESION RATES</b>				
<b>OVERALL (a)</b>	6/50 (12%)	3/50 (6%)	11/50 (22%)	9/50 (18%)
<b>POLY-3 RATE (b)</b>	6/44.09	3/44.59	11/42.33	9/41.70
<b>POLY-3 PERCENT (g)</b>	13.6%	6.7%	26%	21.6%
<b>TERMINAL (d)</b>	5/36 (14%)	2/35 (6%)	8/27 (30%)	5/26 (19%)
<b>FIRST INCIDENCE</b>	649	681	537	562
<b>STATISTICAL TESTS</b>				
<b>POLY 3</b>	P=0.073	P=0.236N	P=0.118	P=0.246
<b>POLY 1.5</b>	P=0.087	P=0.235N	P=0.134	P=0.269
<b>POLY 6</b>	P=0.055	P=0.240N	P=0.092	P=0.211
<b>COCH-ARM / FISHERS</b>	P=0.105	P=0.243N	P=0.143	P=0.288
<b>MAX-ISO-POLY-3</b>	P=0.075	P=0.143N	P=0.076	P=0.172

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Islets, Pancreatic Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	1/49 (2%)
POLY-3 RATE (b)	0/43.79	2/44.82	0/41.56	1/39.76
POLY-3 PERCENT (g)	0%	4.5%	0%	2.5%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	671	---	618
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.507	P=0.242	(e)	P=0.481
POLY 1.5	P=0.523	P=0.242	(e)	P=0.489
POLY 6	P=0.483	P=0.242	(e)	P=0.468
COCH-ARM / FISHERS	P=0.534	P=0.247	(e)	P=0.495
MAX-ISO-POLY-3	P=0.329	P=0.081	(e)	P=0.157

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Kidney Infarct</b>				
<b>LESION RATES</b>				
<b>OVERALL (a)</b>	0/50 (0%)	2/50 (4%)	2/50 (4%)	1/50 (2%)
<b>POLY-3 RATE (b)</b>	0/43.79	2/45.00	2/41.96	1/40.13
<b>POLY-3 PERCENT (g)</b>	0%	4.4%	4.8%	2.5%
<b>TERMINAL (d)</b>	0/36 (0%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
<b>FIRST INCIDENCE</b>	---	537	646	684
<b>STATISTICAL TESTS</b>				
<b>POLY 3</b>	P=0.419	P=0.243	P=0.227	P=0.483
<b>POLY 1.5</b>	P=0.445	P=0.242	P=0.234	P=0.492
<b>POLY 6</b>	P=0.380	P=0.242	P=0.216	P=0.468
<b>COCH-ARM / FISHERS</b>	P=0.469	P=0.247	P=0.247	P=0.500
<b>MAX-ISO-POLY-3</b>	P=0.252	P=0.082	P=0.076	P=0.158

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Kidney Nephropathy</b>				
<b>LESION RATES</b>				
OVERALL (a)	35/50 (70%)	31/50 (62%)	20/50 (40%)	19/50 (38%)
POLY-3 RATE (b)	35/45.53	31/45.30	20/44.39	19/43.47
POLY-3 PERCENT (g)	76.9%	68.4%	45.1%	43.7%
TERMINAL (d)	30/36 (83%)	25/35 (71%)	13/27 (48%)	10/26 (39%)
FIRST INCIDENCE	499	656	457	478
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.243N	P<0.001N**	P<0.001N**
POLY 1.5	P<0.001N**	P=0.233N	P<0.001N**	P<0.001N**
POLY 6	P<0.001N**	P=0.270N	P<0.001N**	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.263N	P=0.002N**	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.174N	P<0.001N**	P<0.001N**



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx Inflammation</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/47 (0%)	1/50 (2%)	0/50 (0%)	2/47 (4%)
POLY-3 RATE (b)	0/42.28	1/44.40	0/41.56	2/37.63
POLY-3 PERCENT (g)	0%	2.3%	0%	5.3%
TERMINAL (d)	0/35 (0%)	1/35 (3%)	0/27 (0%)	1/24 (4%)
FIRST INCIDENCE	---	731 (T)	---	660
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.118	P=0.510	(e)	P=0.212
POLY 1.5	P=0.126	P=0.512	(e)	P=0.224
POLY 6	P=0.108	P=0.507	(e)	P=0.196
COCH-ARM / FISHERS	P=0.134	P=0.515	(e)	P=0.247
MAX-ISO-POLY-3	P=0.073	P=0.167	(e)	P=0.075

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Respiratory Epithelium Metaplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/47 (4%)	49/50 (98%)	50/50 (100%)	47/47 (100%)
POLY-3 RATE (b)	2/42.28	49/49.74	50/50.00	47/47.00
POLY-3 PERCENT (g)	4.7%	98.5%	100%	100%
TERMINAL (d)	2/35 (6%)	35/35 (100%)	27/27 (100%)	24/24 (100%)
FIRST INCIDENCE	731 (T)	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Respiratory Epithelium Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/47 (0%)	24/50 (48%)	31/50 (62%)	34/47 (72%)
POLY-3 RATE (b)	0/42.28	24/47.55	31/45.37	34/42.74
POLY-3 PERCENT (g)	0%	50.5%	68.3%	79.6%
TERMINAL (d)	0/35 (0%)	15/35 (43%)	19/27 (70%)	20/24 (83%)
FIRST INCIDENCE	---	391	537	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Squamous Epithelium Erosion</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/47 (2%)	2/50 (4%)	7/50 (14%)	4/47 (9%)
POLY-3 RATE (b)	1/42.28	2/44.68	7/42.85	4/38.07
POLY-3 PERCENT (g)	2.4%	4.5%	16.3%	10.5%
TERMINAL (d)	1/35 (3%)	1/35 (3%)	4/27 (15%)	2/24 (8%)
FIRST INCIDENCE	731 (T)	656	533	571
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.067	P=0.519	P=0.031*	P=0.147
POLY 1.5	P=0.082	P=0.522	P=0.034*	P=0.162
POLY 6	P=0.050*	P=0.515	P=0.025*	P=0.129
COCH-ARM / FISHERS	P=0.104	P=0.523	P=0.036*	P=0.181
MAX-ISO-POLY-3	P=0.064	P=0.298	P=0.013*	P=0.075

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Larynx: Squamous Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/47 (4%)	13/50 (26%)	21/50 (42%)	21/47 (45%)
POLY-3 RATE (b)	2/42.31	13/46.07	21/45.32	21/41.10
POLY-3 PERCENT (g)	4.7%	28.2%	46.3%	51.1%
TERMINAL (d)	1/35 (3%)	8/35 (23%)	11/27 (41%)	12/24 (50%)
FIRST INCIDENCE	725	505	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P=0.003**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P=0.003**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P=0.003**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.003**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Basophilic Focus</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	2/50 (4%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	1/43.91	2/44.40	2/42.07	1/39.95
POLY-3 PERCENT (g)	2.3%	4.5%	4.8%	2.5%
TERMINAL (d)	0/36 (0%)	2/35 (6%)	0/27 (0%)	1/26 (4%)
FIRST INCIDENCE	701	731 (T)	646	731 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.596N	P=0.504	P=0.485	P=0.739
POLY 1.5	P=0.575N	P=0.505	P=0.495	P=0.751
POLY 6	P=0.574	P=0.500	P=0.467	P=0.721
COCH-ARM / FISHERS	P=0.556N	P=0.500	P=0.500	P=0.753N
MAX-ISO-POLY-3	P=0.550	P=0.285	P=0.272	P=0.473

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Clear Cell Focus</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	1/43.79	1/44.40	1/41.56	0/39.95
POLY-3 PERCENT (g)	2.3%	2.3%	2.4%	0%
TERMINAL (d)	1/36 (3%)	1/35 (3%)	1/27 (4%)	0/26 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	731 (T)	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Eosinophilic Focus</b>				
<b>LESION RATES</b>				
OVERALL (a)	3/50 (6%)	2/50 (4%)	4/50 (8%)	0/50 (0%)
POLY-3 RATE (b)	3/43.79	2/44.40	4/42.44	0/39.95
POLY-3 PERCENT (g)	6.9%	4.5%	9.4%	0%
TERMINAL (d)	3/36 (8%)	2/35 (6%)	2/27 (7%)	0/26 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	457	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.168N	P=0.494N	P=0.483	P=0.136N
POLY 1.5	P=0.152N	P=0.493N	P=0.497	P=0.126N
POLY 6	P=0.196N	P=0.498N	P=0.455	P=0.151N
COCH-ARM / FISHERS	P=0.137N	P=0.500N	P=0.500	P=0.121N
MAX-ISO-POLY-3	P=0.144N	P=0.319N	P=0.334	P=0.052N



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

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Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatodiaphragmatic Nodule</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)
POLY-3 RATE (b)	0/43.79	0/44.40	1/41.87	1/40.34
POLY-3 PERCENT (g)	0%	0%	2.4%	2.5%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	646	618
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

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Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Necrosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	6/50 (12%)	3/50 (6%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	6/46.77	3/45.58	2/42.14	1/40.02
POLY-3 PERCENT (g)	12.8%	6.6%	4.8%	2.5%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	383	391	593	713
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.049N*	P=0.255N	P=0.169N	P=0.085N
POLY 1.5	P=0.042N*	P=0.248N	P=0.151N	P=0.071N
POLY 6	P=0.060N	P=0.265N	P=0.198N	P=0.109N
COCH-ARM / FISHERS	P=0.035N*	P=0.243N	P=0.134N	P=0.056N
MAX-ISO-POLY-3	P=0.061N	P=0.160N	P=0.103N	P=0.050N*

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Tension Lipidosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	5/50 (10%)	5/50 (10%)	3/50 (6%)	2/50 (4%)
POLY-3 RATE (b)	5/44.07	5/45.34	3/42.17	2/40.03
POLY-3 PERCENT (g)	11.3%	11%	7.1%	5%
TERMINAL (d)	4/36 (11%)	2/35 (6%)	2/27 (7%)	1/26 (4%)
FIRST INCIDENCE	655	506	533	709
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.162N	P=0.613N	P=0.380N	P=0.256N
POLY 1.5	P=0.145N	P=0.615N	P=0.364N	P=0.235N
POLY 6	P=0.193N	P=0.615N	P=0.413N	P=0.292N
COCH-ARM / FISHERS	P=0.128N	P=0.630N	P=0.357N	P=0.218N
MAX-ISO-POLY-3	P=0.262N	P=0.480N	P=0.255N	P=0.158N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung Inflammation</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	3/50 (6%)	2/50 (4%)	15/50 (30%)
POLY-3 RATE (b)	0/43.65	3/45.30	2/42.49	15/45.41
POLY-3 PERCENT (g)	0%	6.6%	4.7%	33%
TERMINAL (d)	0/36 (0%)	1/35 (3%)	0/27 (0%)	4/26 (15%)
FIRST INCIDENCE	---	537	593	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P=0.125	P=0.231	P<0.001**
POLY 1.5	P<0.001**	P=0.125	P=0.238	P<0.001**
POLY 6	P<0.001**	P=0.125	P=0.221	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.125	P=0.253	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P=0.043*	P=0.077	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung Proteinosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	45/50 (90%)	50/50 (100%)	50/50 (100%)
POLY-3 RATE (b)	0/43.65	45/48.07	50/50.00	50/50.00
POLY-3 PERCENT (g)	0%	93.6%	100%	100%
TERMINAL (d)	0/36 (0%)	34/35 (97%)	27/27 (100%)	26/26 (100%)
FIRST INCIDENCE	---	505	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolar Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/49 (4%)	27/50 (54%)	26/50 (52%)	41/50 (82%)
POLY-3 RATE (b)	2/43.65	27/45.76	26/47.06	41/47.16
POLY-3 PERCENT (g)	4.6%	59%	55.3%	86.9%
TERMINAL (d)	2/36 (6%)	22/35 (63%)	14/27 (52%)	24/26 (92%)
FIRST INCIDENCE	731 (T)	537	457	478
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolar/Bronchiolar Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	49/50 (98%)	49/50 (98%)	50/50 (100%)
POLY-3 RATE (b)	0/43.65	49/50.00	49/49.60	50/50.00
POLY-3 PERCENT (g)	0%	98%	98.8%	100%
TERMINAL (d)	0/36 (0%)	34/35 (97%)	27/27 (100%)	26/26 (100%)
FIRST INCIDENCE	---	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolar/Bronchiolar Epithelium Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	48/50 (96%)	49/50 (98%)	48/50 (96%)
POLY-3 RATE (b)	0/43.65	48/50.00	49/49.60	48/49.51
POLY-3 PERCENT (g)	0%	96%	98.8%	97%
TERMINAL (d)	0/36 (0%)	34/35 (97%)	27/27 (100%)	26/26 (100%)
FIRST INCIDENCE	---	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Alveolus Infiltration Cellular Histiocyte</b>				
<b>LESION RATES</b>				
OVERALL (a)	10/49 (20%)	49/50 (98%)	50/50 (100%)	49/50 (98%)
POLY-3 RATE (b)	10/44.75	49/49.67	50/50.00	49/49.69
POLY-3 PERCENT (g)	22.4%	98.7%	100%	98.6%
TERMINAL (d)	6/36 (17%)	35/35 (100%)	27/27 (100%)	26/26 (100%)
FIRST INCIDENCE	583	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Bronchiole, Epithelium Erosion</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	0/50 (0%)	4/50 (8%)	3/50 (6%)
POLY-3 RATE (b)	0/43.65	0/44.40	4/43.50	3/40.45
POLY-3 PERCENT (g)	0%	0%	9.2%	7.4%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	1/27 (4%)	1/26 (4%)
FIRST INCIDENCE	---	---	457	642
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.028*	(e)	P=0.059	P=0.105
POLY 1.5	P=0.033*	(e)	P=0.062	P=0.113
POLY 6	P=0.022*	(e)	P=0.054	P=0.095
COCH-ARM / FISHERS	P=0.041*	(e)	P=0.061	P=0.125
MAX-ISO-POLY-3	P=0.042*	(e)	P=0.020*	P=0.038*

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung: Bronchiole, Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	3/50 (6%)	12/50 (24%)	26/50 (52%)
POLY-3 RATE (b)	0/43.65	3/44.40	12/45.30	26/46.68
POLY-3 PERCENT (g)	0%	6.8%	26.5%	55.7%
TERMINAL (d)	0/36 (0%)	3/35 (9%)	5/27 (19%)	10/26 (39%)
FIRST INCIDENCE	---	731 (T)	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P=0.122	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P=0.123	P<0.001**	P<0.001**
POLY 6	P<0.001**	P=0.119	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.125	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P=0.040*	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lymph Node: Iliac Ectasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	3/11 (27%)	0/8 (0%)	1/7 (14%)	0/1 (0%)
POLY-3 RATE (b)	3/9.99	0/5.49	1/6.32	0/0.78
POLY-3 PERCENT (g)	30%	0%	15.8%	0%
TERMINAL (d)	3/7 (43%)	0/2 (0%)	0/4 (0%)	0/0 (0%)
FIRST INCIDENCE	731 (T)	---	703	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.306N	P=0.230N	P=0.477N	P=0.742N
POLY 1.5	P=0.317N	P=0.200N	P=0.477N	P=0.727N
POLY 6	P=0.275N	P=0.274N	P=0.473N	P=0.771N
COCH-ARM / FISHERS	P=0.322N	P=0.170N	P=0.485N	P=0.750N
MAX-ISO-POLY-3	P=0.488N	P=0.121N	P=0.287N	P=0.356N

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lymph Node: Renal Ectasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/11 (18%)	2/8 (25%)	0/7 (0%)	0/1 (0%)
POLY-3 RATE (b)	2/9.99	2/5.49	0/6.21	0/0.78
POLY-3 PERCENT (g)	20%	36.4%	0%	0%
TERMINAL (d)	2/7 (29%)	2/2 (100%)	0/4 (0%)	0/0 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.306N	P=0.464	P=0.342N	P=0.824N
POLY 1.5	P=0.319N	P=0.512	P=0.340N	P=0.815N
POLY 6	P=0.271N	P=0.399	P=0.343N	P=0.842N
COCH-ARM / FISHERS	P=0.322N	P=0.574	P=0.359N	P=0.833N
MAX-ISO-POLY-3	P=0.488N	P=0.290	P=0.146N	P=0.389N

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Mesentery: Fat Necrosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	18/18 (100%)	11/13 (85%)	10/10 (100%)	8/8 (100%)
POLY-3 RATE (b)	18/18.00	11/12.92	10/10.00	8/8.00
POLY-3 PERCENT (g)	100%	85.1%	100%	100%
TERMINAL (d)	13/13 (100%)	10/11 (91%)	6/6 (100%)	6/6 (100%)
FIRST INCIDENCE	383	638	562	604
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.581	P=0.167N	(e)	(e)
POLY 1.5	P=0.577	P=0.163N	(e)	(e)
POLY 6	P=0.589	P=0.174N	(e)	(e)
COCH-ARM / FISHERS	P=0.571	P=0.168N	(e)	(e)
MAX-ISO-POLY-3	P=0.408	P=0.052N	(e)	(e)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose Inflammation</b>				
<b>LESION RATES</b>				
OVERALL (a)	3/50 (6%)	47/50 (94%)	50/50 (100%)	50/50 (100%)
POLY-3 RATE (b)	3/43.79	47/50.00	50/50.00	50/50.00
POLY-3 PERCENT (g)	6.9%	94%	100%	100%
TERMINAL (d)	3/36 (8%)	32/35 (91%)	27/27 (100%)	26/26 (100%)
FIRST INCIDENCE	731 (T)	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium Atrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	4/50 (8%)	44/50 (88%)	39/50 (78%)	24/50 (48%)
POLY-3 RATE (b)	4/44.47	44/49.17	39/48.55	24/44.56
POLY-3 PERCENT (g)	9%	89.5%	80.3%	53.9%
TERMINAL (d)	3/36 (8%)	32/35 (91%)	21/27 (78%)	15/26 (58%)
FIRST INCIDENCE	499	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P=0.002**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P=0.014*	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	22/50 (44%)	16/50 (32%)	8/50 (16%)
POLY-3 RATE (b)	1/43.79	22/46.79	16/43.93	8/41.48
POLY-3 PERCENT (g)	2.3%	47%	36.4%	19.3%
TERMINAL (d)	1/36 (3%)	17/35 (49%)	11/27 (41%)	5/26 (19%)
FIRST INCIDENCE	731 (T)	391	551	354
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.272	P<0.001**	P<0.001**	P=0.012*
POLY 1.5	P=0.332	P<0.001**	P<0.001**	P=0.014*
POLY 6	P=0.183	P<0.001**	P<0.001**	P=0.009**
COCH-ARM / FISHERS	P=0.378	P<0.001**	P<0.001**	P=0.015*
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P=0.005**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium Metaplasia Respiratory</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	26/50 (52%)	44/50 (88%)	50/50 (100%)
POLY-3 RATE (b)	1/43.79	26/47.20	44/49.92	50/50.00
POLY-3 PERCENT (g)	2.3%	55.1%	88.1%	100%
TERMINAL (d)	1/36 (3%)	17/35 (49%)	22/27 (82%)	26/26 (100%)
FIRST INCIDENCE	731 (T)	505	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Olfactory Epithelium</b>				
<b>Respiratory Metaplasia Atypical</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	18/50 (36%)	14/50 (28%)	1/50 (2%)
POLY-3 RATE (b)	0/43.79	18/45.41	14/41.81	1/39.95
POLY-3 PERCENT (g)	0%	39.6%	33.5%	2.5%
TERMINAL (d)	0/36 (0%)	16/35 (46%)	11/27 (41%)	1/26 (4%)
FIRST INCIDENCE	---	537	709	731 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.283N	P<0.001**	P<0.001**	P=0.482
POLY 1.5	P=0.217N	P<0.001**	P<0.001**	P=0.491
POLY 6	P=0.407N	P<0.001**	P<0.001**	P=0.467
COCH-ARM / FISHERS	P=0.192N	P<0.001**	P<0.001**	P=0.500
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P=0.158

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Accumulation, Hyaline Droplet</b>				
<b>LESION RATES</b>				
OVERALL (a)	12/50 (24%)	38/50 (76%)	40/50 (80%)	10/50 (20%)
POLY-3 RATE (b)	12/45.46	38/47.85	40/47.83	10/41.97
POLY-3 PERCENT (g)	26.4%	79.4%	83.6%	23.8%
TERMINAL (d)	8/36 (22%)	27/35 (77%)	22/27 (82%)	4/26 (15%)
FIRST INCIDENCE	523	505	457	506
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.126N	P<0.001**	P<0.001**	P=0.488N
POLY 1.5	P=0.063N	P<0.001**	P<0.001**	P=0.443N
POLY 6	P=0.289N	P<0.001**	P<0.001**	P=0.556N
COCH-ARM / FISHERS	P=0.063N	P<0.001**	P<0.001**	P=0.405N
MAX-ISO-POLY-3	P<0.001N**	P<0.001**	P<0.001**	P=0.393N

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	44/50 (88%)	40/50 (80%)	40/50 (80%)	9/50 (18%)
POLY-3 RATE (b)	44/47.89	40/48.44	40/48.03	9/42.20
POLY-3 PERCENT (g)	91.9%	82.6%	83.3%	21.3%
TERMINAL (d)	33/36 (92%)	30/35 (86%)	23/27 (85%)	5/26 (19%)
FIRST INCIDENCE	383	505	533	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.135N	P=0.155N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.142N	P=0.151N	P<0.001N**
POLY 6	P<0.001N**	P=0.143N	P=0.184N	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.207N	P=0.207N	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.079N	P=0.091N	P<0.001N**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Metaplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	49/50 (98%)	49/50 (98%)	50/50 (100%)
POLY-3 RATE (b)	0/43.79	49/50.00	49/50.00	50/50.00
POLY-3 PERCENT (g)	0%	98%	98%	100%
TERMINAL (d)	0/36 (0%)	35/35 (100%)	26/27 (96%)	26/26 (100%)
FIRST INCIDENCE	---	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Respiratory Epithelium Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	40/50 (80%)	47/50 (94%)	47/50 (94%)
POLY-3 RATE (b)	0/43.79	40/48.65	47/50.00	47/49.06
POLY-3 PERCENT (g)	0%	82.2%	94%	95.8%
TERMINAL (d)	0/36 (0%)	28/35 (80%)	24/27 (89%)	25/26 (96%)
FIRST INCIDENCE	---	391	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Squamous Epithelium Erosion</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	7/50 (14%)	1/50 (2%)	5/50 (10%)
POLY-3 RATE (b)	0/43.79	7/45.24	1/42.17	5/41.97
POLY-3 PERCENT (g)	0%	15.5%	2.4%	11.9%
TERMINAL (d)	0/36 (0%)	4/35 (11%)	0/27 (0%)	2/26 (8%)
FIRST INCIDENCE	---	638	533	354
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.132	P=0.008**	P=0.492	P=0.027*
POLY 1.5	P=0.145	P=0.008**	P=0.498	P=0.029*
POLY 6	P=0.111	P=0.009**	P=0.482	P=0.023*
COCH-ARM / FISHERS	P=0.154	P=0.006**	P=0.500	P=0.028*
MAX-ISO-POLY-3	P=0.028*	P=0.003**	P=0.158	P=0.009**



**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Nose: Turbinate Atrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	44/50 (88%)	50/50 (100%)	50/50 (100%)
POLY-3 RATE (b)	0/43.79	44/48.55	50/50.00	50/50.00
POLY-3 PERCENT (g)	0%	90.6%	100%	100%
TERMINAL (d)	0/36 (0%)	31/35 (89%)	27/27 (100%)	26/26 (100%)
FIRST INCIDENCE	---	505	457	354
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Ovary Cyst</b>				
<b>LESION RATES</b>				
OVERALL (a)	8/48 (17%)	2/50 (4%)	11/50 (22%)	10/50 (20%)
POLY-3 RATE (b)	8/42.78	2/44.40	11/44.17	10/40.59
POLY-3 PERCENT (g)	18.7%	4.5%	24.9%	24.6%
TERMINAL (d)	7/35 (20%)	2/35 (6%)	5/27 (19%)	6/26 (23%)
FIRST INCIDENCE	697	731 (T)	457	660
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.089	P=0.038N*	P=0.330	P=0.347
POLY 1.5	P=0.109	P=0.038N*	P=0.343	P=0.390
POLY 6	P=0.067	P=0.040N*	P=0.304	P=0.290
COCH-ARM / FISHERS	P=0.139	P=0.039N*	P=0.341	P=0.435
MAX-ISO-POLY-3	P=0.097	P=0.018N*	P=0.244	P=0.262

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pancreas</b>				
<b>Atrophy</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)	1/49 (2%)
POLY-3 RATE (b)	1/43.79	0/44.40	2/41.63	1/39.36
POLY-3 PERCENT (g)	2.3%	0%	4.8%	2.5%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	1/27 (4%)	1/26 (4%)
FIRST INCIDENCE	731 (T)	---	712	731 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.453	P=0.497N	P=0.482	P=0.737
POLY 1.5	P=0.473	P=0.497N	P=0.494	P=0.747
POLY 6	P=0.426	P=0.499N	P=0.462	P=0.720
COCH-ARM / FISHERS	P=0.494	P=0.500N	P=0.500	P=0.747
MAX-ISO-POLY-3	P=0.378	P=0.158N	P=0.270	P=0.470

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pituitary Gland: Pars Distalis</b>				
<b>Angiectasis</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/47 (4%)	1/50 (2%)	0/48 (0%)	0/49 (0%)
POLY-3 RATE (b)	2/41.65	1/44.40	0/39.84	0/38.95
POLY-3 PERCENT (g)	4.8%	2.3%	0%	0%
TERMINAL (d)	2/34 (6%)	1/35 (3%)	0/27 (0%)	0/25 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.102N	P=0.478N	P=0.247N	P=0.252N
POLY 1.5	P=0.100N	P=0.476N	P=0.239N	P=0.240N
POLY 6	P=0.107N	P=0.481N	P=0.261N	P=0.271N
COCH-ARM / FISHERS	P=0.098N	P=0.477N	P=0.242N	P=0.237N
MAX-ISO-POLY-3	P=0.098N	P=0.265N	P=0.086N	P=0.092N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pituitary Gland: Pars Distalis Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	12/47 (26%)	5/50 (10%)	6/48 (13%)	5/49 (10%)
POLY-3 RATE (b)	12/42.47	5/44.68	6/40.21	5/39.34
POLY-3 PERCENT (g)	28.3%	11.2%	14.9%	12.7%
TERMINAL (d)	9/34 (27%)	4/35 (11%)	5/27 (19%)	4/25 (16%)
FIRST INCIDENCE	499	656	626	618
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.082N	P=0.038N*	P=0.112N	P=0.070N
POLY 1.5	P=0.069N	P=0.037N*	P=0.096N	P=0.055N
POLY 6	P=0.105N	P=0.040N*	P=0.142N	P=0.098N
COCH-ARM / FISHERS	P=0.058N	P=0.040N*	P=0.087N	P=0.044N*
MAX-ISO-POLY-3	P=0.055N	P=0.022N*	P=0.075N	P=0.047N*

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
<b>Inflammation Chronic</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	1/50 (2%)	2/49 (4%)	0/50 (0%)
POLY-3 RATE (b)	2/43.91	1/44.68	2/41.34	0/39.95
POLY-3 PERCENT (g)	4.6%	2.2%	4.8%	0%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	701	656	537	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.229N	P=0.494N	P=0.672	P=0.259N
POLY 1.5	P=0.215N	P=0.494N	P=0.683	P=0.247N
POLY 6	P=0.250N	P=0.496N	P=0.653	P=0.278N
COCH-ARM / FISHERS	P=0.201N	P=0.500N	P=0.684	P=0.247N
MAX-ISO-POLY-3	P=0.197N	P=0.277N	P=0.475	P=0.096N

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Spleen</b>				
<b>Hematopoietic Cell Proliferation</b>				
<b>LESION RATES</b>				
OVERALL (a)	5/49 (10%)	4/49 (8%)	4/48 (8%)	1/49 (2%)
POLY-3 RATE (b)	5/44.58	4/43.87	4/41.01	1/39.36
POLY-3 PERCENT (g)	11.2%	9.1%	9.8%	2.5%
TERMINAL (d)	3/36 (8%)	2/35 (6%)	1/27 (4%)	1/26 (4%)
FIRST INCIDENCE	523	698	626	731 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.112N	P=0.510N	P=0.552N	P=0.132N
POLY 1.5	P=0.096N	P=0.503N	P=0.530N	P=0.117N
POLY 6	P=0.138N	P=0.520N	P=0.585N	P=0.157N
COCH-ARM / FISHERS	P=0.081N	P=0.500N	P=0.513N	P=0.102N
MAX-ISO-POLY-3	P=0.142N	P=0.373N	P=0.414N	P=0.073N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Forestomach Hyperplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	3/50 (6%)	1/50 (2%)
POLY-3 RATE (b)	0/43.79	0/44.40	3/42.78	1/40.17
POLY-3 PERCENT (g)	0%	0%	7%	2.5%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	533	673
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.204	(e)	P=0.114	P=0.483
POLY 1.5	P=0.224	(e)	P=0.118	P=0.492
POLY 6	P=0.178	(e)	P=0.107	P=0.469
COCH-ARM / FISHERS	P=0.247	(e)	P=0.121	P=0.500
MAX-ISO-POLY-3	P=0.128	(e)	P=0.038*	P=0.158



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

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First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Forestomach Inflammation Chronic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:23:29

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Forestomach Ulcer</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/50 (4%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	2/44.21	2/44.72	1/41.87	0/39.95
POLY-3 PERCENT (g)	4.5%	4.5%	2.4%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	655	681	646	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.144N	P=0.690N	P=0.519N	P=0.260N
POLY 1.5	P=0.134N	P=0.689N	P=0.507N	P=0.248N
POLY 6	P=0.160N	P=0.694N	P=0.541N	P=0.281N
COCH-ARM / FISHERS	P=0.125N	P=0.691N	P=0.500N	P=0.247N
MAX-ISO-POLY-3	P=0.198N	P=0.495N	P=0.301N	P=0.098N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Stomach, Glandular Ulcer</b>				
<b>LESION RATES</b>				
OVERALL (a)	1/48 (2%)	2/50 (4%)	0/49 (0%)	0/49 (0%)
POLY-3 RATE (b)	1/43.98	2/45.58	0/40.96	0/39.36
POLY-3 PERCENT (g)	2.3%	4.4%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	400	391	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.205N	P=0.512	P=0.514N	P=0.522N
POLY 1.5	P=0.195N	P=0.515	P=0.505N	P=0.510N
POLY 6	P=0.221N	P=0.508	P=0.528N	P=0.538N
COCH-ARM / FISHERS	P=0.186N	P=0.515	P=0.495N	P=0.495N
MAX-ISO-POLY-3	P=0.223N	P=0.292	P=0.177N	P=0.187N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Tooth Dysplasia</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)
POLY-3 RATE (b)	0/0.00	0/0.00	0/0.00	0/0.00
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	---	---	---	---
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Trachea: Epithelium                      Vacuolization Cytoplasmic</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/48 (0%)	26/50 (52%)	37/48 (77%)	39/49 (80%)
POLY-3 RATE (b)	0/42.65	26/47.39	37/44.73	39/44.27
POLY-3 PERCENT (g)	0%	54.9%	82.7%	88.1%
TERMINAL (d)	0/35 (0%)	19/35 (54%)	23/27 (85%)	25/26 (96%)
FIRST INCIDENCE	---	391	537	506
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

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DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<hr/>				
Uterus				
Angiectasis				
<hr/>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	4/50 (8%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.65	4/44.78	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	8.9%	0%	0%
TERMINAL (d)	0/36 (0%)	2/35 (6%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	649	---	---
<hr/>				
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.271N	P=0.063	(e)	(e)
POLY 1.5	P=0.253N	P=0.064	(e)	(e)
POLY 6	P=0.301N	P=0.062	(e)	(e)
COCH-ARM / FISHERS	P=0.243N	P=0.061	(e)	(e)
MAX-ISO-POLY-3	P=0.148N	P=0.021*	(e)	(e)

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TDMS No. 60311 - 06

Test Type: CHRONIC

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P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Uterus</b>				
<b>Inflammation Chronic</b>				
<b>LESION RATES</b>				
OVERALL (a)	2/49 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	2/43.65	0/44.40	1/41.56	0/39.95
POLY-3 PERCENT (g)	4.6%	0%	2.4%	0%
TERMINAL (d)	2/36 (6%)	0/35 (0%)	1/27 (4%)	0/26 (0%)
FIRST INCIDENCE	731 (T)	---	731 (T)	---
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.197N	P=0.233N	P=0.517N	P=0.257N
POLY 1.5	P=0.192N	P=0.232N	P=0.503N	P=0.245N
POLY 6	P=0.205N	P=0.236N	P=0.539N	P=0.276N
COCH-ARM / FISHERS	P=0.185N	P=0.242N	P=0.492N	P=0.242N
MAX-ISO-POLY-3	P=0.104N	P=0.075N	P=0.300N	P=0.096N

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Uterus</b>				
<b>Thrombosis</b>				
<b>LESION RATES</b>				
OVERALL (a)	0/49 (0%)	2/50 (4%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	0/43.65	2/45.00	0/41.56	1/39.95
POLY-3 PERCENT (g)	0%	4.4%	0%	2.5%
TERMINAL (d)	0/36 (0%)	1/35 (3%)	0/27 (0%)	1/26 (4%)
FIRST INCIDENCE	---	537	---	731 (T)
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.505	P=0.244	(e)	P=0.482
POLY 1.5	P=0.525	P=0.244	(e)	P=0.493
POLY 6	P=0.474	P=0.242	(e)	P=0.467
COCH-ARM / FISHERS	P=0.543	P=0.253	(e)	P=0.505
MAX-ISO-POLY-3	P=0.333	P=0.081	(e)	P=0.160



TDMS No. 60311 - 06

Test Type: CHRONIC

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Uterus: Endometrium Hyperplasia Cystic</b>				
<b>LESION RATES</b>				
OVERALL (a)	41/49 (84%)	38/50 (76%)	40/50 (80%)	34/50 (68%)
POLY-3 RATE (b)	41/47.60	38/47.26	40/47.98	34/45.40
POLY-3 PERCENT (g)	86.1%	80.4%	83.4%	74.9%
TERMINAL (d)	31/36 (86%)	31/35 (89%)	23/27 (85%)	20/26 (77%)
FIRST INCIDENCE	400	506	533	478
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.114N	P=0.311N	P=0.462N	P=0.120N
POLY 1.5	P=0.076N	P=0.264N	P=0.420N	P=0.077N
POLY 6	P=0.194N	P=0.389N	P=0.527N	P=0.211N
COCH-ARM / FISHERS	P=0.054N	P=0.242N	P=0.416N	P=0.056N
MAX-ISO-POLY-3	P=0.122N	P=0.221N	P=0.348N	P=0.078N

## LEGEND

- (a) Number of tumor-bearing animals/number of animals examined at site.
  - (b) Number of tumor-bearing animals/Poly-3 number
  - (d) Observed incidence at terminal kill.
  - (e) Value of statistic cannot be computed.
  - (f) Beneath the control incidence are the P-values associated with the trend test. Beneath the dosed group incidence are the P-values corresponding to pairwise comparisons between the controls and that dosed group.
  - (g) Poly-3 adjusted lifetime tumor incidence.
  - (n) No statistics are calculated if all dose groups have fewer than two tumors.
  - (I) Interim sacrifice
  - (T) Terminal sacrifice
  - # Tumor rates based on numbers of animals necropsied.
  - \* To the right of any statistical result, indicates significance at ( $P \leq 0.05$ ).
  - \*\* To the right of any statistical result, indicates significance at ( $P \leq 0.01$ ).
  - N Indicates a negative trend for all tests
- The Cochran-Armitage and Fishers exact tests compare directly the overall incidence rates.

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