

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

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
Adrenal Cortex Hyperplasia				
LESION RATES				
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)
STATISTICAL TESTS				
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
Adrenal Cortex Hypertrophy				
LESION RATES				
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)
STATISTICAL TESTS				
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
Adrenal Medulla Hyperplasia				
LESION RATES				
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)	---	---
STATISTICAL TESTS				
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
Brain: Meninges				
Infiltration Cellular Mononuclear Cell				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Epididymis				
Granuloma Sperm				
LESION RATES				
OVERALL (a)	2/50 (4%)	0/49 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	2/47.49	0/44.01	1/41.78	0/40.58
POLY-3 PERCENT (g)	4.2%	0%	2.4%	0%
TERMINAL (d)	2/39 (5%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	---	647	---
STATISTICAL TESTS				
POLY 3	P=0.200N	P=0.255N	P=0.544N	P=0.274N
POLY 1.5	P=0.195N	P=0.249N	P=0.529N	P=0.259N
POLY 6	P=0.206N	P=0.263N	P=0.560N	P=0.293N
COCH-ARM / FISHERS	P=0.187N	P=0.253N	P=0.500N	P=0.247N
MAX-ISO-POLY-3	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
Eye				
Phthisis Bulbi				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Eye: Cornea				
Inflammation Chronic				
LESION RATES				
OVERALL (a)	4/47 (9%)	1/46 (2%)	1/43 (2%)	0/45 (0%)
POLY-3 RATE (b)	4/45.59	1/41.49	1/36.94	0/36.44
POLY-3 PERCENT (g)	8.8%	2.4%	2.7%	0%
TERMINAL (d)	2/39 (5%)	1/31 (3%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE	646	729 (T)	729 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.045N*	P=0.208N	P=0.249N	P=0.094N
POLY 1.5	P=0.042N*	P=0.198N	P=0.233N	P=0.082N
POLY 6	P=0.049N*	P=0.224N	P=0.266N	P=0.111N
COCH-ARM / FISHERS	P=0.038N*	P=0.187N	P=0.209N	P=0.064N
MAX-ISO-POLY-3	P=0.044N*	P=0.110N	P=0.145N	P=0.047N*

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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
Harderian Gland Hyperplasia				
LESION RATES				
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)
STATISTICAL TESTS				
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
Heart				
Cardiomyopathy				
LESION RATES				
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
STATISTICAL TESTS				
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
Islets, Pancreatic Hyperplasia				
LESION RATES				
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)
STATISTICAL TESTS				
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
Kidney Infarct				
LESION RATES				
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
STATISTICAL TESTS				
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
Kidney Nephropathy				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx Inflammation				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Respiratory Epithelium Metaplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Respiratory Epithelium				
Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Squamous Epithelium Erosion				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Squamous Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Liver				
Basophilic Focus				
LESION RATES				
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
STATISTICAL TESTS				
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
Liver				
Clear Cell Focus				
LESION RATES				
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)	---
STATISTICAL TESTS				
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
Liver				
Eosinophilic Focus				
LESION RATES				
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
STATISTICAL TESTS				
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
Liver				
Hepatodiaphragmatic Nodule				
LESION RATES				
OVERALL (a)	0/50 (0%)	3/50 (6%)	0/50 (0%)	3/50 (6%)
POLY-3 RATE (b)	0/47.49	3/44.65	0/41.48	3/41.21
POLY-3 PERCENT (g)	0%	6.7%	0%	7.3%
TERMINAL (d)	0/39 (0%)	1/31 (3%)	0/29 (0%)	1/25 (4%)
FIRST INCIDENCE	---	639	---	586
STATISTICAL TESTS				
POLY 3	P=0.125	P=0.108	(e)	P=0.095
POLY 1.5	P=0.139	P=0.113	(e)	P=0.104
POLY 6	P=0.111	P=0.103	(e)	P=0.086
COCH-ARM / FISHERS	P=0.163	P=0.121	(e)	P=0.121
MAX-ISO-POLY-3	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
<hr/>				
Liver				
Necrosis				
<hr/>				
LESION RATES				
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)
<hr/>				
STATISTICAL TESTS				
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
Liver				
Tension Lipidosis				
LESION RATES				
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	---
STATISTICAL TESTS				
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

**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
Lung Inflammation				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung				
Proteinosis				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolar Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolar/Bronchiolar Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolar/Bronchiolar Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolus Infiltration Cellular Histiocyte				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Bronchiole, Epithelium Erosion				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Bronchiole, Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Lymph Node: Iliac Ectasia				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Lymph Node: Renal Ectasia				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Mesentery: Fat Necrosis				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose Inflammation				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium Atrophy				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium Metaplasia Respiratory				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium				
Respiratory Metaplasia Atypical				
LESION RATES				
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
STATISTICAL TESTS				
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

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
Nose: Respiratory Epithelium Accumulation, Hyaline Droplet				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Respiratory Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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

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
Nose: Respiratory Epithelium Metaplasia				
LESION RATES				
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
STATISTICAL TESTS				
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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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
Nose: Respiratory Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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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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
Nose: Squamous Epithelium				
Erosion				
LESION RATES				
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	---
STATISTICAL TESTS				
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

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	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
Nose: Turbinate Atrophy				
LESION RATES				
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
STATISTICAL TESTS				
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
Pancreas				
Atrophy				
LESION RATES				
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
STATISTICAL TESTS				
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
Pituitary Gland: Pars Distalis Angiectasis				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Pituitary Gland: Pars Distalis Hyperplasia				
LESION RATES				
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)	---
STATISTICAL TESTS				
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

**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
Skin				
Inflammation Chronic				
LESION RATES				
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
STATISTICAL TESTS				
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
Spleen				
Hematopoietic Cell Proliferation				
LESION RATES				
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	---	---	---
STATISTICAL TESTS				
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
Stomach, Forestomach Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Stomach, Forestomach Inflammation Chronic				
LESION RATES				
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
STATISTICAL TESTS				
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
Stomach, Forestomach Ulcer				
LESION RATES				
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
STATISTICAL TESTS				
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

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
Stomach, Glandular Ulcer				
LESION RATES				
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
STATISTICAL TESTS				
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
Testes: Germinal Epithelium Degeneration				
LESION RATES				
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
STATISTICAL TESTS				
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

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
Tooth Dysplasia				
LESION RATES				
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)
STATISTICAL TESTS				
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
Trachea: Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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
Adrenal Cortex Hyperplasia				
LESION RATES				
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)
STATISTICAL TESTS				
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
Adrenal Cortex Hypertrophy				
LESION RATES				
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)	---	---
STATISTICAL TESTS				
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)

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
Adrenal Medulla Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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)

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
Eye				
Phthisis Bulbi				
LESION RATES				
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)	---	---
STATISTICAL TESTS				
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)

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

Eye: Cornea
Inflammation Chronic

LESION RATES

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	---

STATISTICAL TESTS

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
Harderian Gland Hyperplasia				
LESION RATES				
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	---
STATISTICAL TESTS				
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
Heart				
Cardiomyopathy				
LESION RATES				
OVERALL (a)	6/50 (12%)	3/50 (6%)	11/50 (22%)	9/50 (18%)
POLY-3 RATE (b)	6/44.09	3/44.59	11/42.33	9/41.70
POLY-3 PERCENT (g)	13.6%	6.7%	26%	21.6%
TERMINAL (d)	5/36 (14%)	2/35 (6%)	8/27 (30%)	5/26 (19%)
FIRST INCIDENCE	649	681	537	562
STATISTICAL TESTS				
POLY 3	P=0.073	P=0.236N	P=0.118	P=0.246
POLY 1.5	P=0.087	P=0.235N	P=0.134	P=0.269
POLY 6	P=0.055	P=0.240N	P=0.092	P=0.211
COCH-ARM / FISHERS	P=0.105	P=0.243N	P=0.143	P=0.288
MAX-ISO-POLY-3	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
Islets, Pancreatic Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Kidney Infarct				
LESION RATES				
OVERALL (a)	0/50 (0%)	2/50 (4%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	0/43.79	2/45.00	2/41.96	1/40.13
POLY-3 PERCENT (g)	0%	4.4%	4.8%	2.5%
TERMINAL (d)	0/36 (0%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	537	646	684
STATISTICAL TESTS				
POLY 3	P=0.419	P=0.243	P=0.227	P=0.483
POLY 1.5	P=0.445	P=0.242	P=0.234	P=0.492
POLY 6	P=0.380	P=0.242	P=0.216	P=0.468
COCH-ARM / FISHERS	P=0.469	P=0.247	P=0.247	P=0.500
MAX-ISO-POLY-3	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
Kidney Nephropathy				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx Inflammation				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Respiratory Epithelium Metaplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Respiratory Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Squamous Epithelium Erosion				
LESION RATES				
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
STATISTICAL TESTS				
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
Larynx: Squamous Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Liver				
Basophilic Focus				
LESION RATES				
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)
STATISTICAL TESTS				
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
Liver				
Clear Cell Focus				
LESION RATES				
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)	---
STATISTICAL TESTS				
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	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
Liver				
Eosinophilic Focus				
LESION RATES				
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	---
STATISTICAL TESTS				
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

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
Liver				
Hepatodiaphragmatic Nodule				
LESION RATES				
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
STATISTICAL TESTS				
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
Liver				
Necrosis				
LESION RATES				
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
STATISTICAL TESTS				
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

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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
Liver				
Tension Lipidosis				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung Inflammation				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung				
Proteinosis				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolar Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolar/Bronchiolar Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolar/Bronchiolar Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Alveolus Infiltration Cellular Histiocyte				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Bronchiole, Epithelium Erosion				
LESION RATES				
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
STATISTICAL TESTS				
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
Lung: Bronchiole, Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Lymph Node: Iliac Ectasia				
LESION RATES				
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	---
STATISTICAL TESTS				
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

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
Lymph Node: Renal Ectasia				
LESION RATES				
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)	---	---
STATISTICAL TESTS				
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

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
Mesentery: Fat Necrosis				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose Inflammation				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium Atrophy				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium Metaplasia Respiratory				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Olfactory Epithelium				
Respiratory Metaplasia Atypical				
LESION RATES				
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)
STATISTICAL TESTS				
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
Nose: Respiratory Epithelium Accumulation, Hyaline Droplet				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Respiratory Epithelium Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Respiratory Epithelium Metaplasia				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Respiratory Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Squamous Epithelium Erosion				
LESION RATES				
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
STATISTICAL TESTS				
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
Nose: Turbinate Atrophy				
LESION RATES				
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
STATISTICAL TESTS				
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
Ovary Cyst				
LESION RATES				
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
STATISTICAL TESTS				
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

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
Pancreas Atrophy				
LESION RATES				
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)
STATISTICAL TESTS				
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
Pituitary Gland: Pars Distalis				
Angiectasis				
LESION RATES				
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)	---	---
STATISTICAL TESTS				
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
Pituitary Gland: Pars Distalis Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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

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
Skin				
Inflammation Chronic				
LESION RATES				
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	---
STATISTICAL TESTS				
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

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
Spleen				
Hematopoietic Cell Proliferation				
LESION RATES				
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)
STATISTICAL TESTS				
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
Stomach, Forestomach Hyperplasia				
LESION RATES				
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
STATISTICAL TESTS				
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

**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
Stomach, Forestomach Inflammation Chronic				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Stomach, Forestomach Ulcer				
LESION RATES				
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	---
STATISTICAL TESTS				
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
Stomach, Glandular Ulcer				
LESION RATES				
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	---	---
STATISTICAL TESTS				
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
Tooth Dysplasia				
LESION RATES				
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	---	---	---	---
STATISTICAL TESTS				
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
Trachea: Epithelium Vacuolization Cytoplasmic				
LESION RATES				
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
STATISTICAL TESTS				
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	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
Uterus				
Angiectasis				
LESION RATES				
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	---	---
STATISTICAL TESTS				
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)

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
Uterus				
Inflammation Chronic				
LESION RATES				
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)	---
STATISTICAL TESTS				
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
Uterus				
Thrombosis				
LESION RATES				
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)
STATISTICAL TESTS				
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

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
Uterus: Endometrium Hyperplasia Cystic				
LESION RATES				
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
STATISTICAL TESTS				
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 ***