

**TDMS No.** 60311 - 06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** MICE/B6C3F1

**P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS**

Cobalt

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

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

**Time Report Requested:** 08:22:42

**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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## HISTORICAL CONTROL STUDIES

From May 2011 report

### SAME ROUTE

20011-06 -- 1-Bromopropane (INHALATION AIR)

99017-06 -- Diethylamine (INHALATION AIR)

93025-06 -- Tetralin (INHALATION AIR)

### ALL ROUTES

99024-08 -- Androstenedione (GAVAGE METHYLCELLULOSE)

99037-06 -- alpha/beta Thujone mixture (GAVAGE METHYLCELLULOSE)

99028-06 -- bis(2-Chloroethoxy)methane (SKIN ETHANOL)

20011-06 -- 1-Bromopropane (INHALATION AIR)

99027-04 -- Chromium picolinate monohydrate (ORAL FEED)

05174-06 -- Cresols (ORAL FEED)

97003-08 -- 1,2-Dibromo-2,4-dicyanobutane (SKIN ETHANOL)

99017-06 -- Diethylamine (INHALATION AIR)

99031-04 -- Ginkgo biloba extract (GAVAGE CORN OIL)

20005-06 -- Ginseng (GAVAGE WATER)

99007-06 -- Goldenseal root powder (ORAL FEED)

88105-04 -- Isoeugenol (GAVAGE CORN OIL)

20007-06 -- Kava kava extract (GAVAGE CORN OIL)

95003-06 -- Methyl trans-styryl ketone (SKIN ETHANOL)

20008-04 -- Milk thistle extract (ORAL FEED)

99023-04 -- beta-Myrcene (GAVAGE CORN OIL)

20107-04 -- N,N-Dimethyl-p-toluidine (GAVAGE CORN OIL)

20009-04 -- beta-Picoline (ORAL WATER)

99020-06 -- Pulegone (GAVAGE CORN OIL)

99032-04 -- Pyrogallol (SKIN ETHANOL)

20114-06 -- Sodium dichromate dihydrate (VI) (ORAL WATER)

88148-07 -- 3,3',4,4'-Tetrachloroazobenzene (GAVAGE CORN OIL)

93025-06 -- Tetralin (INHALATION AIR)

88133-08 -- Trimethylolpropane triacrylate (SKIN ACETONE)

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**FOR ALL DOSES THE TUMOR RATES IN THE FOLLOWING TISSUES/ORGANS ARE BASED ON NUMBER OF TISSUES EXAMINED.  
IN OTHER TISSUES/ORGANS RATES ARE BASED ON THE NUMBER OF ANIMALS NECROPSIED.**

Adrenal Cortex

Bone Marrow

Islets, Pancreatic

Liver

Lung

Ovary

Pituitary Gland

Spleen

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

**MALE MICE**

**Organ**

Islets, Pancreatic  
Liver

Lung

All Organs

**Morphology**

Carcinoma or Adenoma  
Hemangiosarcoma  
Hepatocellular Adenoma  
Hepatocellular Carcinoma  
Hepatocellular Carcinoma or Hepatoblastoma  
Hepatocellular Carcinoma or Hepatocellular Adenoma  
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma  
Alveolar/Bronchiolar Adenoma  
Alveolar/Bronchiolar Carcinoma  
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma  
Benign Tumors  
Malignant Tumors  
Malignant and Benign Tumors

**FEMALE MICE**

**Organ**

Liver

Lung

Pituitary Gland: Pars Distalis or Unspecified Site  
All Organs

**Morphology**

Hepatocellular Adenoma  
Hepatocellular Carcinoma  
Hepatocellular Carcinoma or Hepatoblastoma  
Hepatocellular Carcinoma or Hepatocellular Adenoma  
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma  
Alveolar/Bronchiolar Adenoma  
Alveolar/Bronchiolar Carcinoma  
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma  
Adenoma  
Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type  
Benign Tumors  
Malignant Tumors  
Malignant and Benign Tumors

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**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex</b>				
<b>Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	1/50 (2%)	4/49 (8%)	1/50 (2%)	1/50 (2%)
POLY-3 RATE (b)	1/47.49	4/44.07	1/41.48	1/40.58
POLY-3 PERCENT (g)	2.1%	9.1%	2.4%	2.5%
TERMINAL (d)	1/39 (3%)	3/31 (10%)	1/29 (3%)	1/25 (4%)
FIRST INCIDENCE	729 (T)	715	729 (T)	729 (T)
HC TUMORS SAME ROUTE	12/148 (8%)			
HC TUMORS ALL ROUTES	74/1145 (7%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.444N	P=0.157	P=0.730	P=0.724
POLY 1.5	P=0.414N	P=0.164	P=0.741	P=0.739
POLY 6	P=0.482N	P=0.147	P=0.717	P=0.705
COCH-ARM / FISHERS	P=0.370N	P=0.175	P=0.753N	P=0.753N
MAX-ISO-POLY-3	P=0.406N	P=0.077	P=0.463	P=0.458
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=0.439	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.115			
CURR VS HC ALL RTES	P=0.168			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/49 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/47.49	0/44.01	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	---	---	---	---
HC TUMORS SAME ROUTE	0/148 (0%)			
HC TUMORS ALL ROUTES	0/1145 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

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TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Bone Marrow</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	1/50 (2%)	1/49 (2%)	2/50 (4%)	0/49 (0%)
POLY-3 RATE (b)	1/47.49	1/44.01	2/41.77	0/39.67
POLY-3 PERCENT (g)	2.1%	2.3%	4.8%	0%
TERMINAL (d)	1/39 (3%)	1/31 (3%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	729 (T)	652	---
HC TUMORS SAME ROUTE	2/148 (1%)			
HC TUMORS ALL ROUTES	11/1146 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.426N	P=0.743	P=0.455	P=0.536N
POLY 1.5	P=0.404N	P=0.749	P=0.471	P=0.523N
POLY 6	P=0.452N	P=0.736	P=0.440	P=0.551N
COCH-ARM / FISHERS	P=0.370N	P=0.747	P=0.500	P=0.505N
MAX-ISO-POLY-3	P=0.318N	P=0.478	P=0.257	P=0.201N
HISTCONT SAME RTE	P=0.612	P=1.000	P=0.261	P=1.000
HISTCONT ALL RTES	P=0.436	P=0.497	P=0.041*	P=1.000
CURR VS HC SAME RTE	P=0.866			
CURR VS HC ALL RTES	P=0.508			

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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	6/50 (12%)	3/50 (6%)	4/50 (8%)	4/50 (8%)
POLY-3 RATE (b)	6/47.78	3/44.26	4/41.57	4/41.21
POLY-3 PERCENT (g)	12.6%	6.8%	9.6%	9.7%
TERMINAL (d)	5/39 (13%)	3/31 (10%)	3/29 (10%)	2/25 (8%)
FIRST INCIDENCE	651	729 (T)	706	635
HC TUMORS SAME ROUTE	13/150 (9%)			
HC TUMORS ALL ROUTES	149/1150 (13%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.454N	P=0.281N	P=0.460N	P=0.465N
POLY 1.5	P=0.427N	P=0.265N	P=0.426N	P=0.428N
POLY 6	P=0.488N	P=0.304N	P=0.495N	P=0.511N
COCH-ARM / FISHERS	P=0.382N	P=0.243N	P=0.370N	P=0.370N
MAX-ISO-POLY-3	P=0.452N	P=0.186N	P=0.341N	P=0.346N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.628			
CURR VS HC ALL RTES	P=0.707			



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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Carcinoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/47.80	1/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	4.2%	2.3%	0%	0%
TERMINAL (d)	1/39 (3%)	1/31 (3%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	646	729 (T)	---	---
HC TUMORS SAME ROUTE	10/150 (7%)			
HC TUMORS ALL ROUTES	37/1150 (3%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.108N	P=0.527N	P=0.270N	P=0.276N
POLY 1.5	P=0.105N	P=0.515N	P=0.258N	P=0.260N
POLY 6	P=0.112N	P=0.542N	P=0.284N	P=0.296N
COCH-ARM / FISHERS	P=0.101N	P=0.500N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.128N	P=0.310N	P=0.107N	P=0.112N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.352			
CURR VS HC ALL RTES	P=0.837			

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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Carcinoma or Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	8/50 (16%)	4/50 (8%)	4/50 (8%)	4/50 (8%)
POLY-3 RATE (b)	8/48.09	4/44.26	4/41.57	4/41.21
POLY-3 PERCENT (g)	16.6%	9%	9.6%	9.7%
TERMINAL (d)	6/39 (15%)	4/31 (13%)	3/29 (10%)	2/25 (8%)
FIRST INCIDENCE	646	729 (T)	706	635
HC TUMORS SAME ROUTE	23/150 (15%)			
HC TUMORS ALL ROUTES	184/1150 (16%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.224N	P=0.220N	P=0.255N	P=0.260N
POLY 1.5	P=0.202N	P=0.201N	P=0.225N	P=0.226N
POLY 6	P=0.254N	P=0.246N	P=0.291N	P=0.306N
COCH-ARM / FISHERS	P=0.169N	P=0.178N	P=0.178N	P=0.178N
MAX-ISO-POLY-3	P=0.257N	P=0.148N	P=0.183N	P=0.188N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.898			
CURR VS HC ALL RTES	P=0.832			

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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Intestine Small: Site Unspecified Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/47.49	0/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	4.2%	0%	0%	0%
TERMINAL (d)	2/39 (5%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	---	---	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	5/1150 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.109N	P=0.253N	P=0.269N	P=0.274N
POLY 1.5	P=0.111N	P=0.247N	P=0.257N	P=0.259N
POLY 6	P=0.107N	P=0.262N	P=0.281N	P=0.293N
COCH-ARM / FISHERS	P=0.115N	P=0.247N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.065N	P=0.091N	P=0.105N	P=0.111N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.018*			
CURR VS HC ALL RTES	P<0.001**			

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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Intestine Small: Site Unspecified Carcinoma or Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/47.49	0/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	4.2%	0%	0%	0%
TERMINAL (d)	2/39 (5%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	---	---	---
HC TUMORS SAME ROUTE	6/150 (4%)			
HC TUMORS ALL ROUTES	28/1150 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.109N	P=0.253N	P=0.269N	P=0.274N
POLY 1.5	P=0.111N	P=0.247N	P=0.257N	P=0.259N
POLY 6	P=0.107N	P=0.262N	P=0.281N	P=0.293N
COCH-ARM / FISHERS	P=0.115N	P=0.247N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.065N	P=0.091N	P=0.105N	P=0.111N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.918			
CURR VS HC ALL RTES	P=0.544			

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TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Islets, Pancreatic Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/49 (0%)	2/47 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/46.78	2/42.99	0/41.48	0/40.58
POLY-3 PERCENT (g)	0%	4.7%	0%	0%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	589	---	---
HC TUMORS SAME ROUTE	0/147 (0%)			
HC TUMORS ALL ROUTES	5/1143 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.442N	P=0.219	(e)	(e)
POLY 1.5	P=0.423N	P=0.223	(e)	(e)
POLY 6	P=0.465N	P=0.213	(e)	(e)
COCH-ARM / FISHERS	P=0.398N	P=0.237	(e)	(e)
MAX-ISO-POLY-3	P=0.294N	P=0.073	(e)	(e)
HISTCONT SAME RTE	P=0.422	P=0.075	(e)	(e)
HISTCONT ALL RTES	P=0.413	P=0.002**	(e)	(e)
CURR VS HC SAME RTE	P=1.000			
CURR VS HC ALL RTES	P=0.448			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Islets, Pancreatic Carcinoma or Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/49 (0%)	3/47 (6%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/46.78	3/43.03	0/41.48	0/40.58
POLY-3 PERCENT (g)	0%	7%	0%	0%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	589	---	---
HC TUMORS SAME ROUTE	4/147 (3%)			
HC TUMORS ALL ROUTES	26/1143 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.357N	P=0.104	(e)	(e)
POLY 1.5	P=0.333N	P=0.107	(e)	(e)
POLY 6	P=0.387N	P=0.100	(e)	(e)
COCH-ARM / FISHERS	P=0.304N	P=0.113	(e)	(e)
MAX-ISO-POLY-3	P=0.211N	P=0.036*	(e)	(e)
HISTCONT SAME RTE	P=1.000	P=0.194	(e)	(e)
HISTCONT ALL RTES	P=1.000	P=0.055	(e)	(e)
CURR VS HC SAME RTE	P=0.203			
CURR VS HC ALL RTES	P=0.189			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	4/50 (8%)	2/50 (4%)	3/50 (6%)	0/50 (0%)
POLY-3 RATE (b)	4/47.76	2/44.67	3/42.52	0/40.58
POLY-3 PERCENT (g)	8.4%	4.5%	7.1%	0%
TERMINAL (d)	2/39 (5%)	1/31 (3%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	682	611	597	---
HC TUMORS SAME ROUTE	4/149 (3%)			
HC TUMORS ALL ROUTES	57/1149 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.083N	P=0.369N	P=0.563N	P=0.084N
POLY 1.5	P=0.073N	P=0.355N	P=0.541N	P=0.074N
POLY 6	P=0.096N	P=0.386N	P=0.583N	P=0.099N
COCH-ARM / FISHERS	P=0.060N	P=0.339N	P=0.500N	P=0.059N
MAX-ISO-POLY-3	P=0.078N	P=0.233N	P=0.411N	P=0.039N*
HISTCONT SAME RTE	P=0.631	P=1.000	P=0.134	P=1.000
HISTCONT ALL RTES	P=1.000	P=1.000	P=0.472	P=1.000
CURR VS HC SAME RTE	P=0.079			
CURR VS HC ALL RTES	P=0.414			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatoblastoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	2/50 (4%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/47.49	2/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	4.2%	4.5%	0%	0%
TERMINAL (d)	2/39 (5%)	2/31 (7%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	729 (T)	729 (T)	---	---
HC TUMORS SAME ROUTE	2/149 (1%)			
HC TUMORS ALL ROUTES	61/1149 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.100N	P=0.668	P=0.269N	P=0.274N
POLY 1.5	P=0.094N	P=0.679	P=0.257N	P=0.259N
POLY 6	P=0.108N	P=0.654	P=0.281N	P=0.293N
COCH-ARM / FISHERS	P=0.086N	P=0.691N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.159N	P=0.471	P=0.105N	P=0.111N
HISTCONT SAME RTE	P=0.761	P=0.199	P=1.000	P=1.000
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.252			
CURR VS HC ALL RTES	P=0.624			



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	28/50 (56%)	25/50 (50%)	21/50 (42%)	12/50 (24%)
POLY-3 RATE (b)	28/48.69	25/44.61	21/44.93	12/41.26
POLY-3 PERCENT (g)	57.5%	56%	46.7%	29.1%
TERMINAL (d)	22/39 (56%)	20/31 (65%)	14/29 (48%)	8/25 (32%)
FIRST INCIDENCE	646	684	361	635
HC TUMORS SAME ROUTE	91/149 (61%)			
HC TUMORS ALL ROUTES	658/1149 (57%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.002N**	P=0.527N	P=0.199N	P=0.005N**
POLY 1.5	P<0.001N**	P=0.444N	P=0.164N	P=0.002N**
POLY 6	P=0.005N**	P=0.530	P=0.245N	P=0.012N*
COCH-ARM / FISHERS	P<0.001N**	P=0.344N	P=0.115N	P<0.001N**
MAX-ISO-POLY-3	P=0.003N**	P=0.443N	P=0.155N	P=0.004N**
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	(h)	(h)	(h)	(h)
CURR VS HC SAME RTE	P=0.313			
CURR VS HC ALL RTES	P=0.532			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	25/50 (50%)	21/50 (42%)	14/50 (28%)	9/50 (18%)
POLY-3 RATE (b)	25/50.00	21/48.15	14/44.44	9/41.09
POLY-3 PERCENT (g)	50%	43.6%	31.5%	21.9%
TERMINAL (d)	14/39 (36%)	9/31 (29%)	5/29 (17%)	6/25 (24%)
FIRST INCIDENCE	561	457	394	649
HC TUMORS SAME ROUTE	46/149 (31%)			
HC TUMORS ALL ROUTES	399/1149 (35%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.002N**	P=0.334N	P=0.052N	P=0.004N**
POLY 1.5	P<0.001N**	P=0.307N	P=0.036N*	P=0.002N**
POLY 6	P=0.006N**	P=0.372N	P=0.074N	P=0.013N*
COCH-ARM / FISHERS	P<0.001N**	P=0.274N	P=0.020N*	P<0.001N**
MAX-ISO-POLY-3	P=0.003N**	P=0.268N	P=0.040N*	P=0.004N**
HISTCONT SAME RTE	P=1.000	P=0.148	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.248	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.060			
CURR VS HC ALL RTES	P=0.057			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma or Hepatoblastoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	27/50 (54%)	22/50 (44%)	14/50 (28%)	9/50 (18%)
POLY-3 RATE (b)	27/50.00	22/48.15	14/44.44	9/41.09
POLY-3 PERCENT (g)	54%	45.7%	31.5%	21.9%
TERMINAL (d)	16/39 (41%)	10/31 (32%)	5/29 (17%)	6/25 (24%)
FIRST INCIDENCE	561	457	394	649
HC TUMORS SAME ROUTE	47/149 (32%)			
HC TUMORS ALL ROUTES	433/1149 (38%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.268N	P=0.021N*	P<0.001N**
POLY 1.5	P<0.001N**	P=0.243N	P=0.013N*	P<0.001N**
POLY 6	P=0.002N**	P=0.304N	P=0.033N*	P=0.004N**
COCH-ARM / FISHERS	P<0.001N**	P=0.212N	P=0.007N**	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.210N	P=0.017N*	P<0.001N**
HISTCONT SAME RTE	P=1.000	P=0.124	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.292	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.025*			
CURR VS HC ALL RTES	P=0.045*			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma or Hepatocellular Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	38/50 (76%)	38/50 (76%)	32/50 (64%)	18/50 (36%)
POLY-3 RATE (b)	38/50.00	38/48.29	32/46.80	18/41.77
POLY-3 PERCENT (g)	76%	78.7%	68.4%	43.1%
TERMINAL (d)	27/39 (69%)	23/31 (74%)	19/29 (66%)	11/25 (44%)
FIRST INCIDENCE	561	457	361	635
HC TUMORS SAME ROUTE	115/149 (77%)			
HC TUMORS ALL ROUTES	844/1149 (74%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.469	P=0.269N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.523	P=0.211N	P<0.001N**
POLY 6	P<0.001N**	P=0.397	P=0.343N	P=0.004N**
COCH-ARM / FISHERS	P<0.001N**	P=0.592N	P=0.138N	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.375	P=0.207N	P<0.001N**
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=0.444	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.521			
CURR VS HC ALL RTES	P=0.938			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	39/50 (78%)	39/50 (78%)	32/50 (64%)	18/50 (36%)
POLY-3 RATE (b)	39/50.00	39/48.29	32/46.80	18/41.77
POLY-3 PERCENT (g)	78%	80.8%	68.4%	43.1%
TERMINAL (d)	28/39 (72%)	24/31 (77%)	19/29 (66%)	11/25 (44%)
FIRST INCIDENCE	561	457	361	635
HC TUMORS SAME ROUTE	115/149 (77%)			
HC TUMORS ALL ROUTES	852/1149 (74%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.464	P=0.197N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.522	P=0.150N	P<0.001N**
POLY 6	P<0.001N**	P=0.388	P=0.262N	P=0.002N**
COCH-ARM / FISHERS	P<0.001N**	P=0.595N	P=0.093N	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.367	P=0.146N	P<0.001N**
HISTCONT SAME RTE	P=1.000	P=1.000	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.374	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.755			
CURR VS HC ALL RTES	P=0.876			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung</b>				
<b>Alveolar/Bronchiolar Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	7/50 (14%)	11/49 (22%)	15/50 (30%)	3/50 (6%)
POLY-3 RATE (b)	7/47.75	11/44.99	15/41.74	3/41.10
POLY-3 PERCENT (g)	14.7%	24.5%	35.9%	7.3%
TERMINAL (d)	5/39 (13%)	7/31 (23%)	14/29 (48%)	2/25 (8%)
FIRST INCIDENCE	684	571	660	571
HC TUMORS SAME ROUTE	20/150 (13%)			
HC TUMORS ALL ROUTES	172/1150 (15%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.254N	P=0.176	P=0.016*	P=0.226N
POLY 1.5	P=0.196N	P=0.188	P=0.024*	P=0.198N
POLY 6	P=0.340N	P=0.160	P=0.011*	P=0.264N
COCH-ARM / FISHERS	P=0.128N	P=0.204	P=0.045*	P=0.159N
MAX-ISO-POLY-3	P=0.042N*	P=0.122	P=0.012*	P=0.155N
HISTCONT SAME RTE	P=0.465	P=0.110	P=0.039*	P=1.000
HISTCONT ALL RTES	P=0.454	P=0.114	P=0.003**	P=1.000
CURR VS HC SAME RTE	P=0.967			
CURR VS HC ALL RTES	P=0.698			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung</b>				
<b>Alveolar/Bronchiolar Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	11/50 (22%)	38/49 (78%)	42/50 (84%)	46/50 (92%)
POLY-3 RATE (b)	11/48.27	38/47.88	42/47.96	46/49.03
POLY-3 PERCENT (g)	22.8%	79.4%	87.6%	93.8%
TERMINAL (d)	8/39 (21%)	24/31 (77%)	25/29 (86%)	22/25 (88%)
FIRST INCIDENCE	561	551	382	425
HC TUMORS SAME ROUTE	31/150 (21%)			
HC TUMORS ALL ROUTES	144/1150 (13%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
HISTCONT SAME RTE	P=0.003**	P=0.007**	P=0.005**	P=0.003**
HISTCONT ALL RTES	P<0.001**	P<0.001**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.989			
CURR VS HC ALL RTES	P=0.078			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung</b>				
<b>Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	16/50 (32%)	41/49 (84%)	43/50 (86%)	47/50 (94%)
POLY-3 RATE (b)	16/48.53	41/48.23	43/47.96	47/49.03
POLY-3 PERCENT (g)	33%	85%	89.7%	95.9%
TERMINAL (d)	11/39 (28%)	26/31 (84%)	26/29 (90%)	23/25 (92%)
FIRST INCIDENCE	561	551	382	425
HC TUMORS SAME ROUTE	48/150 (32%)			
HC TUMORS ALL ROUTES	301/1150 (26%)			

**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**
HISTCONT SAME RTE	P=0.005**	P=0.011*	P=0.009**	P=0.006**
HISTCONT ALL RTEs	P<0.001**	P<0.001**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.823			
CURR VS HC ALL RTEs	P=0.529			



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pituitary Gland: Pars Distalis or Unspecified Site Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/47 (0%)	0/49 (0%)	0/48 (0%)	0/48 (0%)
POLY-3 RATE (b)	0/45.09	0/44.01	0/40.34	0/39.09
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/38 (0%)	0/31 (0%)	0/28 (0%)	0/24 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	1/146 (1%)			
HC TUMORS ALL ROUTES	3/1131 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/47.49	1/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	0%	2.3%	0%	0%
TERMINAL (d)	0/39 (0%)	1/31 (3%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	729 (T)	---	---
HC TUMORS SAME ROUTE	3/150 (2%)			
HC TUMORS ALL ROUTES	14/1150 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/47.49	1/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	0%	2.3%	0%	0%
TERMINAL (d)	0/39 (0%)	1/31 (3%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	729 (T)	---	---
HC TUMORS SAME ROUTE	3/150 (2%)			
HC TUMORS ALL ROUTES	13/1150 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	0/47.49	0/44.26	1/41.48	0/40.58
POLY-3 PERCENT (g)	0%	0%	2.4%	0%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE	---	---	729 (T)	---
HC TUMORS SAME ROUTE	3/150 (2%)			
HC TUMORS ALL ROUTES	19/1150 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
<b>Sarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/47.49	0/44.26	0/41.48	0/40.58
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/39 (0%)	0/31 (0%)	0/29 (0%)	0/25 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	2/150 (1%)			
HC TUMORS ALL ROUTES	3/1150 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

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 PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Spleen Hemangiosarcoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	3/50 (6%)	0/48 (0%)	4/49 (8%)	3/48 (6%)
POLY-3 RATE (b)	3/47.58	0/43.07	4/41.86	3/39.05
POLY-3 PERCENT (g)	6.3%	0%	9.6%	7.7%
TERMINAL (d)	2/39 (5%)	0/31 (0%)	1/29 (3%)	2/25 (8%)
FIRST INCIDENCE	708	---	652	649
HC TUMORS SAME ROUTE	6/147 (4%)			
HC TUMORS ALL ROUTES	37/1136 (3%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.292	P=0.137N	P=0.431	P=0.568
POLY 1.5	P=0.316	P=0.132N	P=0.452	P=0.598
POLY 6	P=0.265	P=0.145N	P=0.410	P=0.532
COCH-ARM / FISHERS	P=0.357	P=0.129N	P=0.489	P=0.641
MAX-ISO-POLY-3	P=0.267	P=0.052N	P=0.297	P=0.408
HISTCONT SAME RTE	P=0.220	P=1.000	P=0.131	P=0.281
HISTCONT ALL RTES	P=0.048*	P=1.000	P=0.014*	P=0.102
CURR VS HC SAME RTE	P=0.637			
CURR VS HC ALL RTES	P=0.338			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	7/50 (14%)	3/50 (6%)	7/50 (14%)	3/50 (6%)
POLY-3 RATE (b)	7/47.76	3/44.67	7/42.76	3/40.87
POLY-3 PERCENT (g)	14.7%	6.7%	16.4%	7.3%
TERMINAL (d)	5/39 (13%)	2/31 (7%)	2/29 (7%)	2/25 (8%)
FIRST INCIDENCE	682	611	597	649
HC TUMORS SAME ROUTE	13/150 (9%)			
HC TUMORS ALL ROUTES	110/1150 (10%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.291N	P=0.186N	P=0.526	P=0.228N
POLY 1.5	P=0.259N	P=0.174N	P=0.556	P=0.199N
POLY 6	P=0.332N	P=0.203N	P=0.501	P=0.268N
COCH-ARM / FISHERS	P=0.213N	P=0.159N	P=0.613N	P=0.159N
MAX-ISO-POLY-3	P=0.253N	P=0.117N	P=0.414	P=0.158N
HISTCONT SAME RTE	P=0.531	P=1.000	P=0.181	P=1.000
HISTCONT ALL RTES	P=0.653	P=1.000	P=0.106	P=1.000
CURR VS HC SAME RTE	P=0.398			
CURR VS HC ALL RTES	P=0.380			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Hemangiosarcoma or Hemangioma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	7/50 (14%)	3/50 (6%)	7/50 (14%)	4/50 (8%)
POLY-3 RATE (b)	7/47.76	3/44.67	7/42.76	4/40.87
POLY-3 PERCENT (g)	14.7%	6.7%	16.4%	9.8%
TERMINAL (d)	5/39 (13%)	2/31 (7%)	2/29 (7%)	3/25 (12%)
FIRST INCIDENCE	682	611	597	649
HC TUMORS SAME ROUTE	14/150 (9%)			
HC TUMORS ALL ROUTES	120/1150 (10%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.428N	P=0.186N	P=0.526	P=0.357N
POLY 1.5	P=0.391N	P=0.174N	P=0.556	P=0.318N
POLY 6	P=0.474N	P=0.203N	P=0.501	P=0.408N
COCH-ARM / FISHERS	P=0.334N	P=0.159N	P=0.613N	P=0.262N
MAX-ISO-POLY-3	P=0.413N	P=0.117N	P=0.414	P=0.261N
HISTCONT SAME RTE	P=0.466	P=1.000	P=0.209	P=1.000
HISTCONT ALL RTES	P=0.636	P=1.000	P=0.182	P=1.000
CURR VS HC SAME RTE	P=0.479			
CURR VS HC ALL RTES	P=0.524			



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	4/50 (8%)	1/50 (2%)	1/50 (2%)	3/50 (6%)
POLY-3 RATE (b)	4/48.28	1/44.26	1/41.85	3/41.81
POLY-3 PERCENT (g)	8.3%	2.3%	2.4%	7.2%
TERMINAL (d)	1/39 (3%)	1/31 (3%)	0/29 (0%)	1/25 (4%)
FIRST INCIDENCE	646	729 (T)	627	227
HC TUMORS SAME ROUTE	6/150 (4%)			
HC TUMORS ALL ROUTES	48/1150 (4%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.551N	P=0.207N	P=0.226N	P=0.578N
POLY 1.5	P=0.539N	P=0.194N	P=0.208N	P=0.545N
POLY 6	P=0.566N	P=0.224N	P=0.246N	P=0.620N
COCH-ARM / FISHERS	P=0.523N	P=0.181N	P=0.181N	P=0.500N
MAX-ISO-POLY-3	P=0.304N	P=0.110N	P=0.129N	P=0.426N
HISTCONT SAME RTE	P=0.095	P=1.000	P=1.000	P=0.200
HISTCONT ALL RTES	P=0.411	P=1.000	P=1.000	P=0.320
CURR VS HC SAME RTE	P=0.253			
CURR VS HC ALL RTES	P=0.243			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Benign Tumors</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	35/50 (70%)	32/50 (64%)	34/50 (68%)	19/50 (38%)
POLY-3 RATE (b)	35/48.77	32/45.53	34/45.27	19/42.07
POLY-3 PERCENT (g)	71.8%	70.3%	75.1%	45.2%
TERMINAL (d)	28/39 (72%)	24/31 (77%)	25/29 (86%)	13/25 (52%)
FIRST INCIDENCE	646	571	361	571
HC TUMORS SAME ROUTE	111/150 (74%)			
HC TUMORS ALL ROUTES	805/1150 (70%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.004N**	P=0.528N	P=0.446	P=0.006N**
POLY 1.5	P=0.002N**	P=0.440N	P=0.532	P=0.003N**
POLY 6	P=0.012N*	P=0.539	P=0.353	P=0.017N*
COCH-ARM / FISHERS	P<0.001N**	P=0.335N	P=0.500N	P<0.001N**
MAX-ISO-POLY-3	P=0.005N**	P=0.435N	P=0.357	P=0.005N**
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.512			
CURR VS HC ALL RTES	P=0.703			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Malignant Tumors</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	36/50 (72%)	46/50 (92%)	46/50 (92%)	48/50 (96%)
POLY-3 RATE (b)	36/50.00	46/50.00	46/49.12	48/50.00
POLY-3 PERCENT (g)	72%	92%	93.7%	96%
TERMINAL (d)	25/39 (64%)	27/31 (87%)	26/29 (90%)	23/25 (92%)
FIRST INCIDENCE	561	457	382	227
HC TUMORS SAME ROUTE	92/150 (61%)			
HC TUMORS ALL ROUTES	679/1150 (59%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P=0.008**	P=0.004**	P<0.001**
POLY 1.5	P<0.001**	P=0.008**	P=0.004**	P<0.001**
POLY 6	P<0.001**	P=0.008**	P=0.003**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.009**	P=0.009**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P=0.004**	P=0.002**	P<0.001**
HISTCONT SAME RTE	P=0.022*	P=0.030*	P=0.028*	P=0.024*
HISTCONT ALL RTES	P<0.001**	P<0.001**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.324			
CURR VS HC ALL RTES	P=0.114			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Males			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Malignant and Benign Tumors</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	45/50 (90%)	49/50 (98%)	50/50 (100%)	49/50 (98%)
POLY-3 RATE (b)	45/50.00	49/50.00	50/50.00	49/50.00
POLY-3 PERCENT (g)	90%	98%	100%	98%
TERMINAL (d)	34/39 (87%)	30/31 (97%)	29/29 (100%)	24/25 (96%)
FIRST INCIDENCE	561	457	361	227
HC TUMORS SAME ROUTE	142/150 (95%)			
HC TUMORS ALL ROUTES	1030/1150 (90%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.050*	P=0.102	P=0.031*	P=0.102
POLY 1.5	P=0.050*	P=0.102	P=0.031*	P=0.102
POLY 6	P=0.050*	P=0.102	P=0.031*	P=0.102
COCH-ARM / FISHERS	P=0.052	P=0.102	P=0.028*	P=0.102
MAX-ISO-POLY-3	P=0.010**	P=0.045*	P=0.010**	P=0.045*
HISTCONT SAME RTE	P=0.112	P=0.172	P=0.072	P=0.172
HISTCONT ALL RTES	P=0.039*	P=0.105	P=0.051	P=0.105
CURR VS HC SAME RTE	P=0.138			
CURR VS HC ALL RTES	P=0.849			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

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 PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex</b>				
<b>Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/48 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/38.93
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	1/150 (1%)			
HC TUMORS ALL ROUTES	5/1193 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Adrenal Cortex Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/48 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	2/41.56	0/38.93
POLY-3 PERCENT (g)	0%	0%	4.8%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	2/27 (7%)	0/26 (0%)
FIRST INCIDENCE	---	---	731 (T)	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	0/1193 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.545	(e)	P=0.225	(e)
POLY 1.5	P=0.566	(e)	P=0.233	(e)
POLY 6	P=0.515	(e)	P=0.212	(e)
COCH-ARM / FISHERS	P=0.587	(e)	P=0.247	(e)
MAX-ISO-POLY-3	P=0.258	(e)	P=0.076	(e)
HISTCONT SAME RTE	P=0.268	(e)	P=0.078	(e)
HISTCONT ALL RTES	P=0.022*	(e)	P<0.001**	(e)
CURR VS HC SAME RTE	P=1.000			
CURR VS HC ALL RTES	P=1.000			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Bone Marrow</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	2/150 (1%)			
HC TUMORS ALL ROUTES	10/1195 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	3/50 (6%)	5/50 (10%)	4/50 (8%)	3/50 (6%)
POLY-3 RATE (b)	3/43.93	5/44.48	4/42.88	3/40.61
POLY-3 PERCENT (g)	6.8%	11.2%	9.3%	7.4%
TERMINAL (d)	2/36 (6%)	4/35 (11%)	1/27 (4%)	1/26 (4%)
FIRST INCIDENCE	697	712	562	618
HC TUMORS SAME ROUTE	7/150 (5%)			
HC TUMORS ALL ROUTES	116/1198 (10%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.535N	P=0.363	P=0.487	P=0.626
POLY 1.5	P=0.507N	P=0.365	P=0.498	P=0.646
POLY 6	P=0.557	P=0.357	P=0.464	P=0.595
COCH-ARM / FISHERS	P=0.482N	P=0.357	P=0.500	P=0.661N
MAX-ISO-POLY-3	P=0.548	P=0.238	P=0.337	P=0.461
HISTCONT SAME RTE	P=0.244	P=0.097	P=0.190	P=0.436
HISTCONT ALL RTES	P=1.000	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.723			
CURR VS HC ALL RTES	P=0.424			



TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Carcinoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	2/44.63	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	4.5%	0%	0%
TERMINAL (d)	0/36 (0%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	671	---	---
HC TUMORS SAME ROUTE	5/150 (3%)			
HC TUMORS ALL ROUTES	26/1198 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.421N	P=0.241	(e)	(e)
POLY 1.5	P=0.410N	P=0.241	(e)	(e)
POLY 6	P=0.441N	P=0.240	(e)	(e)
COCH-ARM / FISHERS	P=0.405N	P=0.247	(e)	(e)
MAX-ISO-POLY-3	P=0.291N	P=0.080	(e)	(e)
HISTCONT SAME RTE	P=1.000	P=1.000	(e)	(e)
HISTCONT ALL RTES	P=1.000	P=0.255	(e)	(e)
CURR VS HC SAME RTE	P=0.128			
CURR VS HC ALL RTES	P=0.322			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Harderian Gland Carcinoma or Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	3/50 (6%)	7/50 (14%)	4/50 (8%)	3/50 (6%)
POLY-3 RATE (b)	3/43.93	7/44.70	4/42.88	3/40.61
POLY-3 PERCENT (g)	6.8%	15.7%	9.3%	7.4%
TERMINAL (d)	2/36 (6%)	5/35 (14%)	1/27 (4%)	1/26 (4%)
FIRST INCIDENCE	697	671	562	618
HC TUMORS SAME ROUTE	12/150 (8%)			
HC TUMORS ALL ROUTES	142/1198 (12%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.438N	P=0.164	P=0.487	P=0.626
POLY 1.5	P=0.408N	P=0.164	P=0.498	P=0.646
POLY 6	P=0.486N	P=0.160	P=0.464	P=0.595
COCH-ARM / FISHERS	P=0.382N	P=0.159	P=0.500	P=0.661N
MAX-ISO-POLY-3	P=0.441	P=0.096	P=0.337	P=0.461
HISTCONT SAME RTE	P=0.593	P=0.116	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.379	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.608			
CURR VS HC ALL RTES	P=0.233			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Intestine Small: Site Unspecified Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	2/1198 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Intestine Small: Site Unspecified Carcinoma or Adenoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	1/43.79	1/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	2.3%	2.3%	0%	0%
TERMINAL (d)	1/36 (3%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	---	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	8/1198 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Islets, Pancreatic Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/39.36
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	3/1185 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Islets, Pancreatic Carcinoma or Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/39.36
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	14/1185 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/43.82	1/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	4.6%	2.3%	0%	0%
TERMINAL (d)	1/36 (3%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	725	731 (T)	---	---
HC TUMORS SAME ROUTE	3/150 (2%)			
HC TUMORS ALL ROUTES	13/1195 (1%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.105N	P=0.495N	P=0.249N	P=0.258N
POLY 1.5	P=0.103N	P=0.495N	P=0.241N	P=0.247N
POLY 6	P=0.110N	P=0.499N	P=0.263N	P=0.277N
COCH-ARM / FISHERS	P=0.101N	P=0.500N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.104N	P=0.278N	P=0.087N	P=0.096N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTEs	P=1.000	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.515			
CURR VS HC ALL RTEs	P=0.058			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

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Lab: BNW

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatoblastoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	0/44.40	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	0%	0%	0%
TERMINAL (d)	0/36 (0%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	---	---	---
HC TUMORS SAME ROUTE	0/150 (0%)			
HC TUMORS ALL ROUTES	4/1195 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)
HISTCONT SAME RTE	(n)	(n)	(n)	(n)
HISTCONT ALL RTES	(n)	(n)	(n)	(n)
CURR VS HC SAME RTE	(n)			
CURR VS HC ALL RTES	(n)			



**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	19/50 (38%)	18/50 (36%)	10/50 (20%)	2/50 (4%)
POLY-3 RATE (b)	19/44.62	18/44.48	10/42.27	2/39.95
POLY-3 PERCENT (g)	42.6%	40.5%	23.7%	5%
TERMINAL (d)	16/36 (44%)	17/35 (49%)	7/27 (26%)	2/26 (8%)
FIRST INCIDENCE	499	712	646	731 (T)
HC TUMORS SAME ROUTE	47/150 (31%)			
HC TUMORS ALL ROUTES	380/1195 (32%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.505N	P=0.046N*	P<0.001N**
POLY 1.5	P<0.001N**	P=0.492N	P=0.039N*	P<0.001N**
POLY 6	P<0.001N**	P=0.532N	P=0.064N	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.500N	P=0.038N*	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.417N	P=0.031N*	P<0.001N**
HISTCONT SAME RTE	P=1.000	P=0.213	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.383	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.369			
CURR VS HC ALL RTES	P=0.319			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	10/50 (20%)	7/50 (14%)	5/50 (10%)	2/50 (4%)
POLY-3 RATE (b)	10/45.05	7/44.66	5/41.94	2/40.94
POLY-3 PERCENT (g)	22.2%	15.7%	11.9%	4.9%
TERMINAL (d)	7/36 (19%)	6/35 (17%)	3/27 (11%)	0/26 (0%)
FIRST INCIDENCE	499	661	646	506
HC TUMORS SAME ROUTE	16/150 (11%)			
HC TUMORS ALL ROUTES	144/1195 (12%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.013N*	P=0.302N	P=0.162N	P=0.020N*
POLY 1.5	P=0.011N*	P=0.295N	P=0.142N	P=0.016N*
POLY 6	P=0.019N*	P=0.318N	P=0.199N	P=0.029N*
COCH-ARM / FISHERS	P=0.009N**	P=0.298N	P=0.131N	P=0.014N*
MAX-ISO-POLY-3	P=0.019N*	P=0.217N	P=0.109N	P=0.012N*
HISTCONT SAME RTE	P=1.000	P=0.302	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.440	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.099			
CURR VS HC ALL RTES	P=0.098			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
 TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma or Hepatoblastoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	10/50 (20%)	7/50 (14%)	5/50 (10%)	2/50 (4%)
POLY-3 RATE (b)	10/45.05	7/44.66	5/41.94	2/40.94
POLY-3 PERCENT (g)	22.2%	15.7%	11.9%	4.9%
TERMINAL (d)	7/36 (19%)	6/35 (17%)	3/27 (11%)	0/26 (0%)
FIRST INCIDENCE	499	661	646	506
HC TUMORS SAME ROUTE	16/150 (11%)			
HC TUMORS ALL ROUTES	148/1195 (12%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.013N*	P=0.302N	P=0.162N	P=0.020N*
POLY 1.5	P=0.011N*	P=0.295N	P=0.142N	P=0.016N*
POLY 6	P=0.019N*	P=0.318N	P=0.199N	P=0.029N*
COCH-ARM / FISHERS	P=0.009N**	P=0.298N	P=0.131N	P=0.014N*
MAX-ISO-POLY-3	P=0.019N*	P=0.217N	P=0.109N	P=0.012N*
HISTCONT SAME RTE	P=1.000	P=0.302	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.458	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.099			
CURR VS HC ALL RTES	P=0.117			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma or Hepatocellular Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	25/50 (50%)	21/50 (42%)	13/50 (26%)	4/50 (8%)
POLY-3 RATE (b)	25/45.20	21/44.74	13/42.34	4/40.94
POLY-3 PERCENT (g)	55.3%	46.9%	30.7%	9.8%
TERMINAL (d)	20/36 (56%)	19/35 (54%)	9/27 (33%)	2/26 (8%)
FIRST INCIDENCE	499	661	646	506
HC TUMORS SAME ROUTE	60/150 (40%)			
HC TUMORS ALL ROUTES	444/1195 (37%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.277N	P=0.014N*	P<0.001N**
POLY 1.5	P<0.001N**	P=0.263N	P=0.010N**	P<0.001N**
POLY 6	P<0.001N**	P=0.310N	P=0.025N*	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.274N	P=0.011N*	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.211N	P=0.010N**	P<0.001N**
HISTCONT SAME RTE	P=1.000	P=0.474	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.369	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.241			
CURR VS HC ALL RTES	P=0.056			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Liver</b>				
<b>Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	25/50 (50%)	21/50 (42%)	13/50 (26%)	4/50 (8%)
POLY-3 RATE (b)	25/45.20	21/44.74	13/42.34	4/40.94
POLY-3 PERCENT (g)	55.3%	46.9%	30.7%	9.8%
TERMINAL (d)	20/36 (56%)	19/35 (54%)	9/27 (33%)	2/26 (8%)
FIRST INCIDENCE	499	661	646	506
HC TUMORS SAME ROUTE	60/150 (40%)			
HC TUMORS ALL ROUTES	444/1195 (37%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001N**	P=0.277N	P=0.014N*	P<0.001N**
POLY 1.5	P<0.001N**	P=0.263N	P=0.010N**	P<0.001N**
POLY 6	P<0.001N**	P=0.310N	P=0.025N*	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.274N	P=0.011N*	P<0.001N**
MAX-ISO-POLY-3	P<0.001N**	P=0.211N	P=0.010N**	P<0.001N**
HISTCONT SAME RTE	P=1.000	P=0.474	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.369	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.241			
CURR VS HC ALL RTES	P=0.056			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung</b>				
<b>Alveolar/Bronchiolar Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	3/49 (6%)	9/50 (18%)	8/50 (16%)	10/50 (20%)
POLY-3 RATE (b)	3/43.65	9/45.26	8/42.24	10/40.88
POLY-3 PERCENT (g)	6.9%	19.9%	18.9%	24.5%
TERMINAL (d)	3/36 (8%)	7/35 (20%)	6/27 (22%)	6/26 (23%)
FIRST INCIDENCE	731 (T)	505	626	593
HC TUMORS SAME ROUTE	9/150 (6%)			
HC TUMORS ALL ROUTES	60/1196 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.037*	P=0.067	P=0.087	P=0.024*
POLY 1.5	P=0.049*	P=0.067	P=0.097	P=0.030*
POLY 6	P=0.024*	P=0.065	P=0.072	P=0.017*
COCH-ARM / FISHERS	P=0.066	P=0.065	P=0.106	P=0.039*
MAX-ISO-POLY-3	P=0.030*	P=0.037*	P=0.049*	P=0.014*
HISTCONT SAME RTE	P=0.035*	P=0.066	P=0.082	P=0.048*
HISTCONT ALL RTES	P<0.001**	P<0.001**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.984			
CURR VS HC ALL RTES	P=0.721			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung</b>				
<b>Alveolar/Bronchiolar Carcinoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	5/49 (10%)	25/50 (50%)	38/50 (76%)	43/50 (86%)
POLY-3 RATE (b)	5/44.44	25/46.46	38/48.14	43/49.03
POLY-3 PERCENT (g)	11.3%	53.8%	78.9%	87.7%
TERMINAL (d)	3/36 (8%)	18/35 (51%)	19/27 (70%)	21/26 (81%)
FIRST INCIDENCE	583	537	457	478
HC TUMORS SAME ROUTE	3/150 (2%)			
HC TUMORS ALL ROUTES	44/1196 (4%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
HISTCONT SAME RTE	P<0.001**	P=0.005**	P<0.001**	P<0.001**
HISTCONT ALL RTES	P<0.001**	P<0.001**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.037*			
CURR VS HC ALL RTES	P=0.022*			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Lung</b>				
<b>Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	8/49 (16%)	30/50 (60%)	41/50 (82%)	45/50 (90%)
POLY-3 RATE (b)	8/44.44	30/47.13	41/48.45	45/49.11
POLY-3 PERCENT (g)	18%	63.7%	84.6%	91.6%
TERMINAL (d)	6/36 (17%)	22/35 (63%)	21/27 (78%)	22/26 (85%)
FIRST INCIDENCE	583	505	457	478
HC TUMORS SAME ROUTE	12/150 (8%)			
HC TUMORS ALL ROUTES	100/1196 (8%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**
HISTCONT SAME RTE	P<0.001**	P=0.006**	P<0.001**	P<0.001**
HISTCONT ALL RTES	P<0.001**	P<0.001**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.172			
CURR VS HC ALL RTES	P=0.050*			



**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Ovary</b>				
<b>Cystadenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	1/48 (2%)	4/50 (8%)	0/50 (0%)	3/50 (6%)
POLY-3 RATE (b)	1/42.65	4/44.81	0/41.56	3/40.34
POLY-3 PERCENT (g)	2.3%	8.9%	0%	7.4%
TERMINAL (d)	1/35 (3%)	3/35 (9%)	0/27 (0%)	2/26 (8%)
FIRST INCIDENCE	731 (T)	614	---	618
HC TUMORS SAME ROUTE	8/149 (5%)			
HC TUMORS ALL ROUTES	55/1179 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.374	P=0.194	P=0.505N	P=0.285
POLY 1.5	P=0.396	P=0.194	P=0.498N	P=0.302
POLY 6	P=0.342	P=0.192	P=0.518N	P=0.261
COCH-ARM / FISHERS	P=0.417	P=0.194	P=0.490N	P=0.324
MAX-ISO-POLY-3	P=0.236	P=0.096	P=0.168N	P=0.148
HISTCONT SAME RTE	P=0.530	P=0.222	P=1.000	P=1.000
HISTCONT ALL RTES	P=0.485	P=0.150	P=1.000	P=0.362
CURR VS HC SAME RTE	P=0.268			
CURR VS HC ALL RTES	P=0.417			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Pituitary Gland: Pars Distalis or Unspecified Site Adenoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	3/47 (6%)	4/50 (8%)	1/48 (2%)	0/49 (0%)
POLY-3 RATE (b)	3/41.95	4/44.63	1/40.15	0/38.95
POLY-3 PERCENT (g)	7.2%	9%	2.5%	0%
TERMINAL (d)	2/34 (6%)	3/35 (9%)	0/27 (0%)	0/25 (0%)
FIRST INCIDENCE	649	671	646	---
HC TUMORS SAME ROUTE	21/145 (15%)			
HC TUMORS ALL ROUTES	76/1175 (7%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.052N	P=0.534	P=0.321N	P=0.132N
POLY 1.5	P=0.046N*	P=0.537	P=0.307N	P=0.121N
POLY 6	P=0.063N	P=0.528	P=0.342N	P=0.150N
COCH-ARM / FISHERS	P=0.041N*	P=0.535	P=0.301N	P=0.113N
MAX-ISO-POLY-3	P=0.081N	P=0.380	P=0.171N	P=0.051N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=0.434	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.124			
CURR VS HC ALL RTES	P=1.000			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	3/50 (6%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	2/44.09	3/45.75	2/42.06	0/39.95
POLY-3 PERCENT (g)	4.5%	6.6%	4.8%	0%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	649	506	626	---
HC TUMORS SAME ROUTE	13/150 (9%)			
HC TUMORS ALL ROUTES	62/1198 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.163N	P=0.517	P=0.677	P=0.260N
POLY 1.5	P=0.148N	P=0.513	P=0.688	P=0.248N
POLY 6	P=0.189N	P=0.518	P=0.657	P=0.279N
COCH-ARM / FISHERS	P=0.134N	P=0.500	P=0.691N	P=0.247N
MAX-ISO-POLY-3	P=0.180N	P=0.341	P=0.480	P=0.097N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.367			
CURR VS HC ALL RTES	P=0.748			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	3/50 (6%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	2/44.09	3/45.75	2/42.06	0/39.95
POLY-3 PERCENT (g)	4.5%	6.6%	4.8%	0%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	649	506	626	---
HC TUMORS SAME ROUTE	13/150 (9%)			
HC TUMORS ALL ROUTES	62/1198 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.163N	P=0.517	P=0.677	P=0.260N
POLY 1.5	P=0.148N	P=0.513	P=0.688	P=0.248N
POLY 6	P=0.189N	P=0.518	P=0.657	P=0.279N
COCH-ARM / FISHERS	P=0.134N	P=0.500	P=0.691N	P=0.247N
MAX-ISO-POLY-3	P=0.180N	P=0.341	P=0.480	P=0.097N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.367			
CURR VS HC ALL RTES	P=0.748			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
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)	---	---
HC TUMORS SAME ROUTE	1/150 (1%)			
HC TUMORS ALL ROUTES	13/1198 (1%)			
<b>STATISTICAL TESTS</b>				
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)
HISTCONT SAME RTE	P=0.600	P=0.135	(e)	(e)
HISTCONT ALL RTES	P=0.691	P=0.045*	(e)	(e)
CURR VS HC SAME RTE	P=0.395			
CURR VS HC ALL RTES	P=0.513			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Skin</b>				
<b>Sarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	3/50 (6%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	2/44.09	3/45.75	2/42.06	0/39.95
POLY-3 PERCENT (g)	4.5%	6.6%	4.8%	0%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	649	506	626	---
HC TUMORS SAME ROUTE	12/150 (8%)			
HC TUMORS ALL ROUTES	29/1198 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.163N	P=0.517	P=0.677	P=0.260N
POLY 1.5	P=0.148N	P=0.513	P=0.688	P=0.248N
POLY 6	P=0.189N	P=0.518	P=0.657	P=0.279N
COCH-ARM / FISHERS	P=0.134N	P=0.500	P=0.691N	P=0.247N
MAX-ISO-POLY-3	P=0.180N	P=0.341	P=0.480	P=0.097N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=0.639	P=0.151	P=0.382	P=1.000
CURR VS HC SAME RTE	P=0.401			
CURR VS HC ALL RTES	P=0.475			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Spleen</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>				
OVERALL (a)	2/49 (4%)	0/49 (0%)	1/48 (2%)	0/49 (0%)
POLY-3 RATE (b)	2/43.67	0/43.66	1/40.44	0/39.36
POLY-3 PERCENT (g)	4.6%	0%	2.5%	0%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	1/27 (4%)	0/26 (0%)
FIRST INCIDENCE	725	---	731 (T)	---
HC TUMORS SAME ROUTE	4/150 (3%)			
HC TUMORS ALL ROUTES	22/1181 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.201N	P=0.237N	P=0.527N	P=0.261N
POLY 1.5	P=0.196N	P=0.236N	P=0.515N	P=0.249N
POLY 6	P=0.208N	P=0.239N	P=0.546N	P=0.279N
COCH-ARM / FISHERS	P=0.189N	P=0.247N	P=0.508N	P=0.247N
MAX-ISO-POLY-3	P=0.108N	P=0.076N	P=0.308N	P=0.098N
HISTCONT SAME RTE	(h)	(h)	(h)	(h)
HISTCONT ALL RTES	P=1.000	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.626			
CURR VS HC ALL RTES	P=0.270			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Uterus</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/43.79	2/44.48	0/41.56	0/39.95
POLY-3 PERCENT (g)	0%	4.5%	0%	0%
TERMINAL (d)	0/36 (0%)	1/35 (3%)	0/27 (0%)	0/26 (0%)
FIRST INCIDENCE	---	712	---	---
HC TUMORS SAME ROUTE	1/150 (1%)			
HC TUMORS ALL ROUTES	2/1198 (0%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.422N	P=0.241	(e)	(e)
POLY 1.5	P=0.411N	P=0.241	(e)	(e)
POLY 6	P=0.442N	P=0.239	(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)
HISTCONT SAME RTE	P=0.602	P=0.140	(e)	(e)
HISTCONT ALL RTES	P=0.222	P<0.001**	(e)	(e)
CURR VS HC SAME RTE	P=0.447			
CURR VS HC ALL RTES	P=0.537			



**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>Uterus</b>				
<b>Polyp Stromal</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	1/50 (2%)	1/50 (2%)
POLY-3 RATE (b)	2/44.76	1/45.00	1/41.56	1/39.95
POLY-3 PERCENT (g)	4.5%	2.2%	2.4%	2.5%
TERMINAL (d)	1/36 (3%)	0/35 (0%)	1/27 (4%)	1/26 (4%)
FIRST INCIDENCE	223	537	731 (T)	731 (T)
HC TUMORS SAME ROUTE	2/150 (1%)			
HC TUMORS ALL ROUTES	24/1198 (2%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.439N	P=0.498N	P=0.526N	P=0.540N
POLY 1.5	P=0.426N	P=0.498N	P=0.513N	P=0.521N
POLY 6	P=0.459N	P=0.500N	P=0.548N	P=0.566N
COCH-ARM / FISHERS	P=0.409N	P=0.500N	P=0.500N	P=0.500N
MAX-ISO-POLY-3	P=0.475N	P=0.279N	P=0.308N	P=0.323N
HISTCONT SAME RTE	P=0.383	P=1.000	P=1.000	P=1.000
HISTCONT ALL RTES	P=0.740	P=1.000	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.226			
CURR VS HC ALL RTES	P=0.337			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Hemangiosarcoma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	3/50 (6%)	6/50 (12%)	3/50 (6%)	0/50 (0%)
POLY-3 RATE (b)	3/43.82	6/44.48	3/41.65	0/39.95
POLY-3 PERCENT (g)	6.9%	13.5%	7.2%	0%
TERMINAL (d)	2/36 (6%)	5/35 (14%)	2/27 (7%)	0/26 (0%)
FIRST INCIDENCE	725	712	709	---
HC TUMORS SAME ROUTE	11/150 (7%)			
HC TUMORS ALL ROUTES	54/1198 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.070N	P=0.249	P=0.639	P=0.136N
POLY 1.5	P=0.060N	P=0.250	P=0.654	P=0.127N
POLY 6	P=0.090N	P=0.244	P=0.611	P=0.152N
COCH-ARM / FISHERS	P=0.054N	P=0.243	P=0.661N	P=0.121N
MAX-ISO-POLY-3	P=0.064N	P=0.153	P=0.474	P=0.052N
HISTCONT SAME RTE	P=1.000	P=0.153	P=1.000	P=1.000
HISTCONT ALL RTES	P=0.574	P=0.014*	P=0.387	P=1.000
CURR VS HC SAME RTE	P=0.715			
CURR VS HC ALL RTES	P=0.599			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Hemangiosarcoma or Hemangioma</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	3/50 (6%)	7/50 (14%)	3/50 (6%)	1/50 (2%)
POLY-3 RATE (b)	3/43.82	7/44.78	3/41.65	1/40.21
POLY-3 PERCENT (g)	6.9%	15.6%	7.2%	2.5%
TERMINAL (d)	2/36 (6%)	5/35 (14%)	2/27 (7%)	0/26 (0%)
FIRST INCIDENCE	725	649	709	660
HC TUMORS SAME ROUTE	11/150 (7%)			
HC TUMORS ALL ROUTES	65/1198 (5%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.140N	P=0.165	P=0.639	P=0.336N
POLY 1.5	P=0.123N	P=0.165	P=0.654	P=0.320N
POLY 6	P=0.171N	P=0.163	P=0.611	P=0.363N
COCH-ARM / FISHERS	P=0.112N	P=0.159	P=0.661N	P=0.309N
MAX-ISO-POLY-3	P=0.126N	P=0.098	P=0.474	P=0.186N
HISTCONT SAME RTE	P=0.758	P=0.086	P=1.000	P=1.000
HISTCONT ALL RTES	P=0.524	P=0.007**	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.715			
CURR VS HC ALL RTES	P=0.826			

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	14/50 (28%)	14/50 (28%)	12/50 (24%)	4/50 (8%)
POLY-3 RATE (b)	14/44.17	14/46.96	12/42.82	4/40.17
POLY-3 PERCENT (g)	31.7%	29.8%	28%	10%
TERMINAL (d)	11/36 (31%)	8/35 (23%)	8/27 (30%)	3/26 (12%)
FIRST INCIDENCE	697	391	537	673
HC TUMORS SAME ROUTE	37/150 (25%)			
HC TUMORS ALL ROUTES	250/1198 (21%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.011N*	P=0.513N	P=0.444N	P=0.013N*
POLY 1.5	P=0.008N**	P=0.533N	P=0.416N	P=0.010N**
POLY 6	P=0.021N*	P=0.500N	P=0.502N	P=0.020N*
COCH-ARM / FISHERS	P=0.006N**	P=0.588N	P=0.410N	P=0.009N**
MAX-ISO-POLY-3	P=0.017N*	P=0.423N	P=0.355N	P=0.008N**
HISTCONT SAME RTE	P=1.000	P=0.469	P=1.000	P=1.000
HISTCONT ALL RTES	P=0.778	P=0.202	P=0.303	P=1.000
CURR VS HC SAME RTE	P=0.664			
CURR VS HC ALL RTES	P=0.184			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

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 PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Benign Tumors</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	29/50 (58%)	31/50 (62%)	20/50 (40%)	17/50 (34%)
POLY-3 RATE (b)	29/46.02	31/46.88	20/43.65	17/41.94
POLY-3 PERCENT (g)	63%	66.1%	45.8%	40.5%
TERMINAL (d)	23/36 (64%)	24/35 (69%)	14/27 (52%)	10/26 (39%)
FIRST INCIDENCE	223	505	562	593
HC TUMORS SAME ROUTE	71/150 (47%)			
HC TUMORS ALL ROUTES	628/1198 (52%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.005N**	P=0.460	P=0.070N	P=0.024N*
POLY 1.5	P=0.003N**	P=0.446	P=0.058N	P=0.017N*
POLY 6	P=0.011N*	P=0.472	P=0.099N	P=0.040N*
COCH-ARM / FISHERS	P=0.002N**	P=0.419	P=0.055N	P=0.013N*
MAX-ISO-POLY-3	P=0.007N**	P=0.374	P=0.049N*	P=0.018N*
HISTCONT SAME RTE	P=1.000	P=0.046*	P=1.000	P=1.000
HISTCONT ALL RTES	P=1.000	P=0.203	P=1.000	P=1.000
CURR VS HC SAME RTE	P=0.190			
CURR VS HC ALL RTES	P=0.391			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

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 PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Malignant Tumors</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	31/50 (62%)	41/50 (82%)	46/50 (92%)	44/50 (88%)
POLY-3 RATE (b)	31/46.89	41/50.00	46/50.00	44/49.03
POLY-3 PERCENT (g)	66.1%	82%	92%	89.8%
TERMINAL (d)	21/36 (58%)	26/35 (74%)	23/27 (85%)	22/26 (85%)
FIRST INCIDENCE	499	391	457	478
HC TUMORS SAME ROUTE	83/150 (55%)			
HC TUMORS ALL ROUTES	581/1198 (49%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.002**	P=0.057	P<0.001**	P=0.004**
POLY 1.5	P=0.002**	P=0.043*	P<0.001**	P=0.003**
POLY 6	P=0.003**	P=0.069	P=0.002**	P=0.004**
COCH-ARM / FISHERS	P<0.001**	P=0.022*	P<0.001**	P=0.002**
MAX-ISO-POLY-3	P<0.001**	P=0.039*	P<0.001**	P=0.002**
HISTCONT SAME RTE	P=0.023*	P=0.042*	P=0.023*	P=0.027*
HISTCONT ALL RTES	P<0.001**	P=0.004**	P<0.001**	P<0.001**
CURR VS HC SAME RTE	P=0.469			
CURR VS HC ALL RTES	P=0.047*			

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P08: STATISTICAL ANALYSIS OF PRIMARY TUMORS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 09/08/2011

Time Report Requested: 08:22:42

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

Lab: BNW

**STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MICE(B6C3F1)  
TERMINAL SACRIFICE AT 105 WEEKS**

DOSE	Females			
	control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>All Organs</b>				
<b>Malignant and Benign Tumors</b>				
<b>TUMOR RATES</b>	#	#	#	#
OVERALL (a)	40/50 (80%)	47/50 (94%)	49/50 (98%)	47/50 (94%)
POLY-3 RATE (b)	40/47.86	47/50.00	49/50.00	47/49.11
POLY-3 PERCENT (g)	83.6%	94%	98%	95.7%
TERMINAL (d)	29/36 (81%)	32/35 (91%)	26/27 (96%)	24/26 (92%)
FIRST INCIDENCE	223	391	457	478
HC TUMORS SAME ROUTE	123/150 (82%)			
HC TUMORS ALL ROUTES	906/1198 (76%)			
<b>STATISTICAL TESTS</b>				
POLY 3	P=0.026*	P=0.088	P=0.012*	P=0.045*
POLY 1.5	P=0.021*	P=0.064	P=0.008**	P=0.037*
POLY 6	P=0.034*	P=0.113	P=0.018*	P=0.057
COCH-ARM / FISHERS	P=0.022*	P=0.036*	P=0.004**	P=0.036*
MAX-ISO-POLY-3	P=0.007**	P=0.050*	P=0.005**	P=0.022*
HISTCONT SAME RTE	P=0.039*	P=0.055	P=0.030*	P=0.041*
HISTCONT ALL RTES	P=0.008**	P=0.044*	P=0.016*	P=0.032*
CURR VS HC SAME RTE	P=0.600			
CURR VS HC ALL RTES	P=0.397			

**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.
- (h) Historical Controls statistic is not calculated when the HC Poly-3 rate is higher than the Poly-3 rates for all dose groups.
- (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 \*\*\*