

Experiment Number: 60311 - 03
Test Type: 90-DAY
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt
CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
Time Report Requested: 08:59:19
First Dose M/F: 03/08/05 / 03/07/05
Lab: BNW

F2_R2

NTP Study Number: C60311
Lock Date: 11/29/2005
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 2.6.0.0_007
PWG Approval Date: NONE

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

MALE RATS

Organ

Kidney

Liver

Lung

Lung: Alveolar Epithelium

Lung: Alveolus

Lung: Bronchiole, Epithelium

Nose: Olfactory Epithelium

Nose: Respiratory Epithelium

Nose: Turbinate

FEMALE RATS

Organ

Liver

Lung

Lung: Alveolus

Lung: Bronchiole, Epithelium

Nose: Olfactory Epithelium

Nose: Respiratory Epithelium

Nose: Turbinate

Ovary

Morphology

Nephropathy

Hepatodiaphragmatic Nodule

Inflammation Chronic

Hyperplasia

Hemorrhage

Proteinosis

Hyperplasia

Degeneration

Hyperplasia

Hyperplasia

Atrophy

Morphology

Hepatodiaphragmatic Nodule

Inflammation Chronic

Hemorrhage

Proteinosis

Hyperplasia

Degeneration

Hyperplasia

Hyperplasia

Atrophy

Cyst

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Eye: Retina					
Atrophy					
LESION RATES					
OVERALL (a)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	1/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	10%	0%	0%	0%	0%
TERMINAL (d)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	93 (T)	---	---	---	---
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.500N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.500N
POLY 6	(e)	(e)	(e)	(e)	P=0.500N
COCH-ARM / FISHERS	P=0.304N	(e)	(e)	(e)	P=0.500N
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.158N

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Harderian Gland Inflammation Chronic					
LESION RATES					
OVERALL (a)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	1/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	10%	0%	0%	0%	0%
TERMINAL (d)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	93 (T)	---	---	---	---
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.500N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.500N
POLY 6	(e)	(e)	(e)	(e)	P=0.500N
COCH-ARM / FISHERS	P=0.304N	(e)	(e)	(e)	P=0.500N
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.158N

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Heart					
Cardiomyopathy					
LESION RATES					
OVERALL (a)	8/10 (80%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	5/10 (50%)
POLY-3 RATE (b)	8/10.00	0/0.00	0/0.00	0/0.00	5/10.00
POLY-3 PERCENT (g)	80%	0%	0%	0%	50%
TERMINAL (d)	8/10 (80%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	5/10 (50%)
FIRST INCIDENCE	93 (T)	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.174N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.174N
POLY 6	(e)	(e)	(e)	(e)	P=0.174N
COCH-ARM / FISHERS	P=0.121N	(e)	(e)	(e)	P=0.175N
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.079N

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Kidney Nephropathy					
LESION RATES					
OVERALL (a)	4/9 (44%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	1/10 (10%)
POLY-3 RATE (b)	4/9.00	0/0.00	0/0.00	0/0.00	1/10.00
POLY-3 PERCENT (g)	44.4%	0%	0%	0%	10%
TERMINAL (d)	4/9 (44%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	1/10 (10%)
FIRST INCIDENCE	93 (T)	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.113N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.113N
POLY 6	(e)	(e)	(e)	(e)	P=0.113N
COCH-ARM / FISHERS	P=0.075N	(e)	(e)	(e)	P=0.119N
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.044N*

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Liver					
Hepatodiaphragmatic Nodule					
LESION RATES					
OVERALL (a)	1/10 (10%)	0/0 (0%)	0/0 (0%)	1/1 (100%)	0/10 (0%)
POLY-3 RATE (b)	1/10.00	0/0.00	0/0.00	1/1.00	0/10.00
POLY-3 PERCENT (g)	10%	0%	0%	100%	0%
TERMINAL (d)	1/10 (10%)	0/0 (0%)	0/0 (0%)	1/1 (100%)	0/10 (0%)
FIRST INCIDENCE	93 (T)	---	---	93 (T)	---
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	P=0.146	P=0.500N
POLY 1.5	(e)	(e)	(e)	P=0.146	P=0.500N
POLY 6	(e)	(e)	(e)	P=0.146	P=0.500N
COCH-ARM / FISHERS	P=0.352N	(e)	(e)	P=0.182	P=0.500N
MAX-ISO-POLY-3	(e)	(e)	(e)	P=0.022*	P=0.158N

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung Inflammation Chronic					
LESION RATES					
OVERALL (a)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	10/10.00	10/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	0%	100%	100%	100%	100%
TERMINAL (d)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	---	93 (T)	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	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**	P<0.001**
POLY 6	P<0.001**	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**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	(e)	(e)

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Alveolar Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	2/10 (20%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	0/10.00	2/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	20%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	2/10 (20%)
FIRST INCIDENCE	---	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	P=0.017*	(e)	(e)	(e)	P=0.227
POLY 1.5	P=0.017*	(e)	(e)	(e)	P=0.227
POLY 6	P=0.017*	(e)	(e)	(e)	P=0.227
COCH-ARM / FISHERS	P=0.021*	(e)	(e)	(e)	P=0.237
MAX-ISO-POLY-3	P=0.009**	(e)	(e)	(e)	P=0.066

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Alveolus Hemorrhage					
LESION RATES					
OVERALL (a)	2/10 (20%)	0/10 (0%)	2/10 (20%)	4/10 (40%)	4/10 (40%)
POLY-3 RATE (b)	2/10.00	0/10.00	2/10.00	4/10.00	4/10.00
POLY-3 PERCENT (g)	20%	0%	20%	40%	40%
TERMINAL (d)	2/10 (20%)	0/10 (0%)	2/10 (20%)	4/10 (40%)	4/10 (40%)
FIRST INCIDENCE	93 (T)	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P=0.048*	P=0.227N	P=0.702	P=0.318	P=0.318
POLY 1.5	P=0.048*	P=0.227N	P=0.702	P=0.318	P=0.318
POLY 6	P=0.048*	P=0.227N	P=0.702	P=0.318	P=0.318
COCH-ARM / FISHERS	P=0.051	P=0.237N	P=0.709N	P=0.314	P=0.314
MAX-ISO-POLY-3	P=0.048*	P=0.066N	P=1.000	P=0.172	P=0.172

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**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Alveolus Proteinosis					
LESION RATES					
OVERALL (a)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	10/10.00	10/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	0%	100%	100%	100%	100%
TERMINAL (d)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	---	93 (T)	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	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**	P<0.001**
POLY 6	P<0.001**	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**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	(e)	(e)

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Bronchiole, Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	10/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	100%	100%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	(e)	(e)

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TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lymph Node: Pancreatic Pigmentation					
LESION RATES					
OVERALL (a)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	1/1 (100%)
POLY-3 RATE (b)	0/0.00	0/0.00	0/0.00	0/0.00	1/1.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	100%
TERMINAL (d)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	1/1 (100%)
FIRST INCIDENCE	---	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	(e)
POLY 1.5	(e)	(e)	(e)	(e)	(e)
POLY 6	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	(e)
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	(e)

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STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Olfactory Epithelium Degeneration					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	2/10 (20%)	9/10 (90%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	2/10.00	9/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	20%	90%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	2/10 (20%)	9/10 (90%)	10/10 (100%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	P=0.227	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	(e)	P=0.227	P<0.001**	P<0.001**
POLY 6	P<0.001**	(e)	P=0.227	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	P=0.237	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	P=0.066	P<0.001**	(e)

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TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Olfactory Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	2/10 (20%)	6/10 (60%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	2/10.00	6/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	20%	60%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	2/10 (20%)	6/10 (60%)	10/10 (100%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	P=0.227	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	(e)	P=0.227	P<0.001**	P<0.001**
POLY 6	P<0.001**	(e)	P=0.227	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	P=0.237	P=0.005**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	P=0.066	P<0.001**	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Respiratory Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	3/10 (30%)	9/10 (90%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	3/10.00	9/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	30%	90%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	3/10 (30%)	9/10 (90%)	10/10 (100%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	P=0.095	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	(e)	P=0.095	P<0.001**	P<0.001**
POLY 6	P<0.001**	(e)	P=0.095	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	P=0.105	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	P=0.025*	P<0.001**	(e)

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Respiratory Epithelium Metaplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	1/10 (10%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	0/10.00	1/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	10%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	1/10 (10%)
FIRST INCIDENCE	---	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	P=0.144	(e)	(e)	(e)	P=0.500
POLY 1.5	P=0.144	(e)	(e)	(e)	P=0.500
POLY 6	P=0.144	(e)	(e)	(e)	P=0.500
COCH-ARM / FISHERS	P=0.142	(e)	(e)	(e)	P=0.500
MAX-ISO-POLY-3	P=0.056	(e)	(e)	(e)	P=0.158

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Respiratory Epithelium Necrosis					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	0/10.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Turbinate Atrophy					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	3/10 (30%)	9/10 (90%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	3/10.00	9/10.00
POLY-3 PERCENT (g)	0%	0%	0%	30%	90%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	3/10 (30%)	9/10 (90%)
FIRST INCIDENCE	---	---	---	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	(e)	P=0.095	P<0.001**
POLY 1.5	P<0.001**	(e)	(e)	P=0.095	P<0.001**
POLY 6	P<0.001**	(e)	(e)	P=0.095	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	(e)	P=0.105	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	P=0.025*	P<0.001**

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Pancreas: Duct Cyst					
LESION RATES					
OVERALL (a)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	1/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	10%	0%	0%	0%	0%
TERMINAL (d)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	93 (T)	---	---	---	---
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.500N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.500N
POLY 6	(e)	(e)	(e)	(e)	P=0.500N
COCH-ARM / FISHERS	P=0.304N	(e)	(e)	(e)	P=0.500N
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.158N

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Salivary Glands					
Inflammation Acute					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	1/10 (10%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	1/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	10%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	1/10 (10%)
FIRST INCIDENCE	---	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.500
POLY 1.5	(e)	(e)	(e)	(e)	P=0.500
POLY 6	(e)	(e)	(e)	(e)	P=0.500
COCH-ARM / FISHERS	P=0.304	(e)	(e)	(e)	P=0.500
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.158

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Males				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Stomach, Forestomach Hyperplasia					
LESION RATES					
OVERALL (a)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	1/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	10%	0%	0%	0%	0%
TERMINAL (d)	1/10 (10%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	93 (T)	---	---	---	---
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.500N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.500N
POLY 6	(e)	(e)	(e)	(e)	P=0.500N
COCH-ARM / FISHERS	P=0.304N	(e)	(e)	(e)	P=0.500N
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.158N

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
<hr/>					
Eye: Retina					
Atrophy					
<hr/>					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
<hr/>					
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Harderian Gland Inflammation Chronic					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Heart					
Cardiomyopathy					
LESION RATES					
OVERALL (a)	2/10 (20%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	3/10 (30%)
POLY-3 RATE (b)	2/10.00	0/0.00	0/0.00	0/0.00	3/10.00
POLY-3 PERCENT (g)	20%	0%	0%	0%	30%
TERMINAL (d)	2/10 (20%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	3/10 (30%)
FIRST INCIDENCE	93 (T)	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.500
POLY 1.5	(e)	(e)	(e)	(e)	P=0.500
POLY 6	(e)	(e)	(e)	(e)	P=0.500
COCH-ARM / FISHERS	P=0.398	(e)	(e)	(e)	P=0.500
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.310

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Kidney Nephropathy					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	2/10 (20%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	2/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	20%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	2/10 (20%)
FIRST INCIDENCE	---	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	(e)	P=0.227
POLY 1.5	(e)	(e)	(e)	(e)	P=0.227
POLY 6	(e)	(e)	(e)	(e)	P=0.227
COCH-ARM / FISHERS	P=0.132	(e)	(e)	(e)	P=0.237
MAX-ISO-POLY-3	(e)	(e)	(e)	(e)	P=0.066

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Liver					
Hepatodiaphragmatic Nodule					
LESION RATES					
OVERALL (a)	0/10 (0%)	1/1 (100%)	0/0 (0%)	0/0 (0%)	1/10 (10%)
POLY-3 RATE (b)	0/10.00	1/1.00	0/0.00	0/0.00	1/10.00
POLY-3 PERCENT (g)	0%	100%	0%	0%	10%
TERMINAL (d)	0/10 (0%)	1/1 (100%)	0/0 (0%)	0/0 (0%)	1/10 (10%)
FIRST INCIDENCE	---	93 (T)	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	(e)	P=0.091	(e)	(e)	P=0.500
POLY 1.5	(e)	P=0.091	(e)	(e)	P=0.500
POLY 6	(e)	P=0.091	(e)	(e)	P=0.500
COCH-ARM / FISHERS	P=0.553	P=0.091	(e)	(e)	P=0.500
MAX-ISO-POLY-3	(e)	P<0.001**	(e)	(e)	P=0.158

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung					
Inflammation Chronic					
LESION RATES					
OVERALL (a)	2/10 (20%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	2/10.00	10/10.00	10/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	20%	100%	100%	100%	100%
TERMINAL (d)	2/10 (20%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	93 (T)	93 (T)	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	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**	P<0.001**
POLY 6	P<0.001**	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**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P<0.001**	P<0.001**	P<0.001**	P<0.001**

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Alveolar Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	1/10 (10%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	0/10.00	1/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	10%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	1/10 (10%)
FIRST INCIDENCE	---	---	---	---	93 (T)
STATISTICAL TESTS					
POLY 3	P=0.144	(e)	(e)	(e)	P=0.500
POLY 1.5	P=0.144	(e)	(e)	(e)	P=0.500
POLY 6	P=0.144	(e)	(e)	(e)	P=0.500
COCH-ARM / FISHERS	P=0.142	(e)	(e)	(e)	P=0.500
MAX-ISO-POLY-3	P=0.056	(e)	(e)	(e)	P=0.158

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Alveolus Hemorrhage					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	3/10 (30%)	1/10 (10%)	2/10 (20%)
POLY-3 RATE (b)	0/10.00	0/10.00	3/10.00	1/10.00	2/10.00
POLY-3 PERCENT (g)	0%	0%	30%	10%	20%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	3/10 (30%)	1/10 (10%)	2/10 (20%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P=0.174	(e)	P=0.095	P=0.500	P=0.227
POLY 1.5	P=0.174	(e)	P=0.095	P=0.500	P=0.227
POLY 6	P=0.174	(e)	P=0.095	P=0.500	P=0.227
COCH-ARM / FISHERS	P=0.178	(e)	P=0.105	P=0.500	P=0.237
MAX-ISO-POLY-3	P=0.080	(e)	P=0.025*	P=0.158	P=0.066

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
 TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Alveolus Proteinosis					
LESION RATES					
OVERALL (a)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	10/10.00	10/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	0%	100%	100%	100%	100%
TERMINAL (d)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	---	93 (T)	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	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**	P<0.001**
POLY 6	P<0.001**	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**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	(e)	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lung: Bronchiole, Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	10/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	100%	100%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	10/10 (100%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
POLY 6	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	P<0.001**	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	(e)	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Lymph Node: Pancreatic Pigmentation					
LESION RATES					
OVERALL (a)	0/0 (0%)	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	0/0.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	---	---	---	---	---
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Olfactory Epithelium Degeneration					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	5/10 (50%)	10/10 (100%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	5/10.00	10/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	50%	100%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	5/10 (50%)	10/10 (100%)	10/10 (100%)
FIRST INCIDENCE	---	---	93 (T)	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	P=0.008**	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	(e)	P=0.008**	P<0.001**	P<0.001**
POLY 6	P<0.001**	(e)	P=0.008**	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	P=0.016*	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	P<0.001**	(e)	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Olfactory Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	3/10 (30%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	3/10.00	10/10.00
POLY-3 PERCENT (g)	0%	0%	0%	30%	100%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	3/10 (30%)	10/10 (100%)
FIRST INCIDENCE	---	---	---	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	(e)	P=0.095	P<0.001**
POLY 1.5	P<0.001**	(e)	(e)	P=0.095	P<0.001**
POLY 6	P<0.001**	(e)	(e)	P=0.095	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	(e)	P=0.105	P<0.001**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	P=0.025*	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Respiratory Epithelium Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	1/10 (10%)	0/10 (0%)	9/10 (90%)	10/10 (100%)
POLY-3 RATE (b)	0/10.00	1/10.00	0/10.00	9/10.00	10/10.00
POLY-3 PERCENT (g)	0%	10%	0%	90%	100%
TERMINAL (d)	0/10 (0%)	1/10 (10%)	0/10 (0%)	9/10 (90%)	10/10 (100%)
FIRST INCIDENCE	---	93 (T)	---	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	P=0.500	(e)	P<0.001**	P<0.001**
POLY 1.5	P<0.001**	P=0.500	(e)	P<0.001**	P<0.001**
POLY 6	P<0.001**	P=0.500	(e)	P<0.001**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.500	(e)	P<0.001**	P<0.001**
MAX-ISO-POLY-3	P<0.001**	P=0.158	(e)	P<0.001**	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Respiratory Epithelium Metaplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	0/10.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Respiratory Epithelium Necrosis					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	1/10 (10%)	0/10 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/10.00	1/10.00	0/10.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	10%	0%	0%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	1/10 (10%)	0/10 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	93 (T)	---	---
STATISTICAL TESTS					
POLY 3	P=0.638N	(e)	P=0.500	(e)	(e)
POLY 1.5	P=0.638N	(e)	P=0.500	(e)	(e)
POLY 6	P=0.638N	(e)	P=0.500	(e)	(e)
COCH-ARM / FISHERS	P=0.640N	(e)	P=0.500	(e)	(e)
MAX-ISO-POLY-3	P=0.298	(e)	P=0.158	(e)	(e)

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Nose: Turbinate Atrophy					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/10 (0%)	0/10 (0%)	4/10 (40%)	6/10 (60%)
POLY-3 RATE (b)	0/10.00	0/10.00	0/10.00	4/10.00	6/10.00
POLY-3 PERCENT (g)	0%	0%	0%	40%	60%
TERMINAL (d)	0/10 (0%)	0/10 (0%)	0/10 (0%)	4/10 (40%)	6/10 (60%)
FIRST INCIDENCE	---	---	---	93 (T)	93 (T)
STATISTICAL TESTS					
POLY 3	P<0.001**	(e)	(e)	P=0.033*	P<0.001**
POLY 1.5	P<0.001**	(e)	(e)	P=0.033*	P<0.001**
POLY 6	P<0.001**	(e)	(e)	P=0.033*	P<0.001**
COCH-ARM / FISHERS	P<0.001**	(e)	(e)	P=0.043*	P=0.005**
MAX-ISO-POLY-3	P<0.001**	(e)	(e)	P=0.007**	P<0.001**

Experiment Number: 60311 - 03
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS
 Cobalt
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012
 Time Report Requested: 08:59:19
 First Dose M/F: 03/08/05 / 03/07/05
 Lab: BNW

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Ovary Cyst					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	1/1 (100%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	1/1.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	100%	0%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	1/1 (100%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	93 (T)	---
STATISTICAL TESTS					
POLY 3	(e)	(e)	(e)	P=0.091	(e)
POLY 1.5	(e)	(e)	(e)	P=0.091	(e)
POLY 6	(e)	(e)	(e)	P=0.091	(e)
COCH-ARM / FISHERS	P=0.700	(e)	(e)	P=0.091	(e)
MAX-ISO-POLY-3	(e)	(e)	(e)	P<0.001**	(e)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Pancreas: Duct Cyst					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Salivary Glands					
Inflammation Acute					
<hr/>					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
<hr/>					
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/F 344/N

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 08:59:19

First Dose M/F: 03/08/05 / 03/07/05

Lab: BNW

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(F 344/N)
TERMINAL SACRIFICE AT 14 WEEKS**

DOSE	Females				
	control	0.625 MG/M3	1.25 MG/M3	2.5 MG/M3	5.0 MG/M3
Stomach, Forestomach Hyperplasia					
LESION RATES					
OVERALL (a)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
POLY-3 RATE (b)	0/10.00	0/0.00	0/0.00	0/0.00	0/10.00
POLY-3 PERCENT (g)	0%	0%	0%	0%	0%
TERMINAL (d)	0/10 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
FIRST INCIDENCE	---	---	---	---	---
STATISTICAL TESTS					
POLY 3	(n)	(n)	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)	(n)	(n)

Experiment Number: 60311 - 03
Test Type: 90-DAY
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/F 344/N

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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 ***