

**Experiment Number:** 60311 - 05  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** RATS/F344/N Tac

**P11: STATISTICAL ANALYSIS OF SURVIVAL DATA**  
Cobalt  
**CAS Number:** 7440-48-4

**Date Report Requested:** 01/18/2012  
**Time Report Requested:** 14:48:12  
**First Dose M/F:** 05/08/06 / 05/08/06  
**Lab:** BNW

F2\_RD

**NTP Study 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:** 2.6.0.0\_007  
**PWG Approval Date:** NONE

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**MALE RATS**

FIRST TERMINAL SACRIFICE AT 729 DAYS  
INDIVIDUAL SURVIVAL TIMES (DAYS)

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**DOSE = Control**

TOTAL 50		UNCENSORED DEATHS 33					CENSORED DEATHS 0					TERMINAL 17		
UNCENSORED DEATH DAYS														
376	383	441	514	519	542	562	583	598	611	613	616	626	663	
663	668	670	675	676	678	682	682	683	688	688	691	696	697	
702	705	719	724	727										
CENSORED DEATH DAYS														
None														

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**DOSE = 1.25 mg/m3**

TOTAL 50		UNCENSORED DEATHS 30					CENSORED DEATHS 0					TERMINAL 20		
UNCENSORED DEATH DAYS														
413	439	540	562	577	580	583	593	596	603	610	618	624	634	
641	663	663	667	667	674	675	675	683	684	684	699	705	708	
715	719													
CENSORED DEATH DAYS														
None														

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**DOSE = 2.5 mg/m3**

TOTAL 50		UNCENSORED DEATHS 33					CENSORED DEATHS 1					TERMINAL 16		
UNCENSORED DEATH DAYS														
472	535	582	583	598	609	611	618	618	625	628	646	652	652	
654	654	667	678	680	683	688	688	689	698	703	704	705	705	
716	716	719	721	725										
CENSORED DEATH DAYS														
548														

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INDIVIDUAL SURVIVAL TIMES (DAYS)

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**DOSE = 5.0 mg/m3**

TOTAL 50	UNCENSORED DEATHS 34						CENSORED DEATHS 0				TERMINAL 16		
UNCENSORED DEATH DAYS													
470	478	491	516	552	561	572	572	590	611	618	619	628	646
646	652	660	660	679	688	689	689	691	691	696	698	702	702
713	715	717	717	722	723								
CENSORED DEATH DAYS													
None													

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**MALE RATS**

FIRST TERMINAL SACRIFICE AT 729 DAYS

KAPLAN-MEIER SURVIVAL PROBABILITY ESTIMATES (%)										
DOSE	TIME (DAYS)									
	90	180	270	365	425	485	545	605	665	729(A)
Control	100.0	100.0	100.0	100.0	96.0	94.0	88.0	82.0	70.0	34.0
1.25 mg/m3	100.0	100.0	100.0	100.0	98.0	96.0	94.0	80.0	66.0	40.0
2.5 mg/m3	100.0	100.0	100.0	100.0	100.0	98.0	96.0	89.9	67.4	32.7
5.0 mg/m3	100.0	100.0	100.0	100.0	100.0	96.0	92.0	82.0	64.0	32.0

(A) FIRST TERMINAL SACRIFICE  
 (B) THE FIRST ENTRY IS THE TREND TEST (TARONE, 1975) RESULT. SUBSEQUENT ENTRIES ARE THE RESULTS OF PAIRWISE TESTS (COX, 1972). NEGATIVE TRENDS ARE INDICATED BY "N".  
 (C) MEAN OF ALL UNCENSORED DEATHS PRIOR TO TERMINAL SACRIFICE  
 (D) MEAN OF ALL DEATHS (UNCENSORED, CENSORED, TERMINAL SACRIFICE)

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**MALE RATS**

FIRST TERMINAL SACRIFICE AT 729 DAYS

<b>SURVIVAL SUMMARY STATISTICS</b>				
<b>DOSE</b>	Control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	34.0%	40.0%	32.7%	32.0%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.808	P=0.796N	P=0.988N	P=1.000
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	629.1 (16.3)	629.8 (13.5)	655.2 (10.1)	640.4 (12.9)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	663.1 (12.6)	669.5 (10.6)	676.7 (8.7)	668.8 (10.5)

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**FEMALE RATS**

FIRST TERMINAL SACRIFICE AT 730 DAYS  
 INDIVIDUAL SURVIVAL TIMES (DAYS)

**DOSE = Control**

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TOTAL 50	UNCENSORED DEATHS 15					CENSORED DEATHS 0					TERMINAL 35				
UNCENSORED DEATH DAYS															
234	316	511	530	550	611	646	654	663	674	674	683	691	698		
722															
CENSORED DEATH DAYS															
None															

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**DOSE = 1.25 mg/m3**

TOTAL 50	UNCENSORED DEATHS 24					CENSORED DEATHS 0					TERMINAL 26				
UNCENSORED DEATH DAYS															
422	516	578	590	593	598	598	611	618	624	624	641	646	646		
670	681	684	686	691	697	702	708	709	716						
CENSORED DEATH DAYS															
None															

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**DOSE = 2.5 mg/m3**

TOTAL 50	UNCENSORED DEATHS 26					CENSORED DEATHS 0					TERMINAL 24				
UNCENSORED DEATH DAYS															
117	291	523	541	587	589	590	590	591	593	605	618	618	628		
632	633	654	661	677	687	688	690	695	702	709	715				
CENSORED DEATH DAYS															
None															

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**DOSE = 5.0 mg/m3**

TOTAL 50	UNCENSORED DEATHS 25					CENSORED DEATHS 0					TERMINAL 25				
UNCENSORED DEATH DAYS															
471	473	478	489	506	530	579	579	590	600	603	618	621	634		
641	646	670	670	674	691	712	717	717	725	726					
CENSORED DEATH DAYS															
None															

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**FEMALE RATS**

FIRST TERMINAL SACRIFICE AT 730 DAYS

KAPLAN-MEIER SURVIVAL PROBABILITY ESTIMATES (%)										
DOSE	TIME (DAYS)									
	90	180	270	365	425	485	545	605	665	730(A)
Control	100.0	100.0	98.0	96.0	96.0	96.0	92.0	90.0	82.0	70.0
1.25 mg/m3	100.0	100.0	100.0	100.0	98.0	98.0	96.0	86.0	72.0	52.0
2.5 mg/m3	100.0	98.0	98.0	96.0	96.0	96.0	92.0	78.0	64.0	48.0
5.0 mg/m3	100.0	100.0	100.0	100.0	100.0	94.0	88.0	78.0	68.0	50.0

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SURVIVAL SUMMARY STATISTICS				
DOSE	Control	1.25 mg/m3	2.5 mg/m3	5.0 mg/m3
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	70.0%	52.0%	48.0%	50.0%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.135	P=0.112	P=0.038	P=0.060
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	590.5 (37.1)	635.4 (14.0)	600.9 (25.5)	614.4 (16.8)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	688.1 (14.2)	684.6 (9.5)	662.9 (16.0)	672.2 (11.7)

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

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