

**Experiment Number:** 60311 - 01  
**Test Type:** 14-DAY  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** RATS/F 344/N

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

**Date Report Requested:** 09/13/2016  
**Time Report Requested:** 11:25:33  
**First Dose M/F:** 08/02/04 / 08/02/04  
**Lab:** BNW

**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:** 3.0.2.3\_002  
**PWG Approval Date:** NONE

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**MALE RATS**

FIRST TERMINAL SACRIFICE AT 16 DAYS  
INDIVIDUAL SURVIVAL TIMES (DAYS)

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**DOSE = CONTROL**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**DOSE = 2.5 MG/M3**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**DOSE = 5 MG/M3**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**DOSE = 10 MG/M3**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**MALE RATS**

FIRST TERMINAL SACRIFICE AT 16 DAYS  
INDIVIDUAL SURVIVAL TIMES (DAYS)

---

**DOSE = 20 MG/M3**

TOTAL 5	UNCENSORED DEATHS 5	CENSORED DEATHS 0	TERMINAL 0
UNCENSORED DEATH DAYS			
5	5	5	9 13
CENSORED DEATH DAYS			
None			

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**DOSE = 40 MG/M3**

TOTAL 5	UNCENSORED DEATHS 5	CENSORED DEATHS 0	TERMINAL 0
UNCENSORED DEATH DAYS			
5	6	6	7 7
CENSORED DEATH DAYS			
None			

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MALE RATS

FIRST TERMINAL SACRIFICE AT 16 DAYS

KAPLAN-MEIER SURVIVAL PROBABILITY ESTIMATES (%)										
DOSE	TIME (DAYS)									
	2	4	6	8	10	12	14	16(A)	18	16(A)
CONTROL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2.5 MG/M3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5 MG/M3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 MG/M3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 MG/M3	100.0	100.0	40.0	40.0	20.0	20.0	0.0	0.0	0.0	0.0
40 MG/M3	100.0	100.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(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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Species/Strain: RATS/F 344/N

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First Dose M/F: 08/02/04 / 08/02/04

Lab: BNW

MALE RATS

FIRST TERMINAL SACRIFICE AT 16 DAYS

SURVIVAL SUMMARY STATISTICS

DOSE	CONTROL	2.5 MG/M3	5 MG/M3	10 MG/M3
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	100.0%	100.0%	100.0%	100.0%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P<0.001	----	----	----
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	(.)	(.)	(.)	(.)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	16.0 (0.0)	16.0 (0.0)	16.0 (0.0)	16.0 (0.0)

  

DOSE	20 MG/M3	40 MG/M3
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	0.0%	0.0%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.008	P=0.012
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	7.4 (1.6)	6.2 (0.4)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	7.4 (1.6)	6.2 (0.4)

(A) FIRST TERMINAL SACRIFICE

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(C) MEAN OF ALL UNCENSORED DEATHS PRIOR TO TERMINAL SACRIFICE

(D) MEAN OF ALL DEATHS (UNCENSORED, CENSORED, TERMINAL SACRIFICE)

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Lab: BNW

**FEMALE RATS**

FIRST TERMINAL SACRIFICE AT 16 DAYS  
INDIVIDUAL SURVIVAL TIMES (DAYS)

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**DOSE = CONTROL**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**DOSE = 2.5 MG/M3**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**DOSE = 5 MG/M3**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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**DOSE = 10 MG/M3**

TOTAL 5	UNCENSORED DEATHS 0	CENSORED DEATHS 0	TERMINAL 5
UNCENSORED DEATH DAYS			
None			
CENSORED DEATH DAYS			
None			

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Lab: BNW

**FEMALE RATS**

FIRST TERMINAL SACRIFICE AT 16 DAYS  
INDIVIDUAL SURVIVAL TIMES (DAYS)

---

**DOSE = 20 MG/M3**

TOTAL 5	UNCENSORED DEATHS 3	CENSORED DEATHS 0	TERMINAL 2
UNCENSORED DEATH DAYS			
5 7 13			
CENSORED DEATH DAYS			
None			

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**DOSE = 40 MG/M3**

TOTAL 5	UNCENSORED DEATHS 5	CENSORED DEATHS 0	TERMINAL 0
UNCENSORED DEATH DAYS			
5 6 6 6 7			
CENSORED DEATH DAYS			
None			

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**FEMALE RATS**  
 FIRST TERMINAL SACRIFICE AT 16 DAYS

KAPLAN-MEIER SURVIVAL PROBABILITY ESTIMATES (%)										
DOSE	TIME (DAYS)									
	2	4	6	8	10	12	14	16(A)	18	16(A)
<b>CONTROL</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>2.5 MG/M3</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>5 MG/M3</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>10 MG/M3</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>20 MG/M3</b>	100.0	100.0	80.0	60.0	60.0	60.0	40.0	40.0	40.0	40.0
<b>40 MG/M3</b>	100.0	100.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(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  
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FEMALE RATS

FIRST TERMINAL SACRIFICE AT 16 DAYS

SURVIVAL SUMMARY STATISTICS

DOSE	CONTROL	2.5 MG/M3	5 MG/M3	10 MG/M3
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	100.0%	100.0%	100.0%	100.0%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P<0.001	----	----	----
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	(.)	(.)	(.)	(.)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	16.0 (0.0)	16.0 (0.0)	16.0 (0.0)	16.0 (0.0)

  

DOSE	20 MG/M3	40 MG/M3
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	40.0%	0.0%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.167	P=0.010
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	8.3 (2.4)	6.0 (0.3)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	11.4 (2.3)	6.0 (0.3)

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

(A) FIRST TERMINAL SACRIFICE

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