

**Experiment Number:** 20403 - 01  
**Test Type:** CHRONIC  
**Route:** DOSED FEED  
**Species/Strain:** RATS/HSD

**P11: STATISTICAL ANALYSIS OF SURVIVAL DATA**

Zinc Carbonate, Basic  
**CAS Number:** 5263-02-5

**Date Report Requested:** 08/06/2015  
**Time Report Requested:** 13:00:00  
**First Dose M/F:** 09/03/09 / 09/04/09  
**Lab:** BAT

F1\_HSD

**NTP Study Number:** C20403  
**Lock Date:** 04/05/2013  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**Study Gender:** Both  
**TDMSE Version:** 3.0.2.2\_002  
**PWG Approval Date:** NONE

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MALE RATS

FIRST TERMINAL SACRIFICE AT 734 DAYS

INDIVIDUAL SURVIVAL TIMES (DAYS)

DOSE = Control (38ppm)

TOTAL 60				UNCENSORED DEATHS 32				CENSORED DEATHS 10				TERMINAL 18			
UNCENSORED DEATH DAYS															
186	488	496	514	537	538	546	552	553	586	609	611	615	636		
638	642	652	656	664	664	673	678	683	684	691	691	693	701		
701	701	729	733												
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370	370						

DOSE = 3.5ppm SevZnDef

TOTAL 60				UNCENSORED DEATHS 19				CENSORED DEATHS 10				TERMINAL 31			
UNCENSORED DEATH DAYS															
285	467	504	505	538	551	649	649	663	675	686	687	698	701		
704	705	708	708	715											
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370	370						

DOSE = 7ppm ZnDef

TOTAL 60				UNCENSORED DEATHS 24				CENSORED DEATHS 9				TERMINAL 27			
UNCENSORED DEATH DAYS															
65	406	439	490	502	505	568	575	580	594	627	641	659	660		
670	676	684	687	688	690	701	707	708	728						
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370							

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**MALE RATS**

FIRST TERMINAL SACRIFICE AT 734 DAYS

INDIVIDUAL SURVIVAL TIMES (DAYS)

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**DOSE = 250ppmModZnExc**

TOTAL 60			UNCENSORED DEATHS 29					CENSORED DEATHS 10				TERMINAL 21	
UNCENSORED DEATH DAYS													
330	363	420	436	461	474	551	562	565	593	615	622	635	636
644	645	648	670	670	671	677	680	680	680	683	700	713	723
725													
CENSORED DEATH DAYS													
370	370	370	370	370	370	370	370	370	370	370			

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**DOSE = 500ppm ZnExc**

TOTAL 60			UNCENSORED DEATHS 30					CENSORED DEATHS 10				TERMINAL 20	
UNCENSORED DEATH DAYS													
355	362	405	412	418	526	541	593	597	599	628	637	642	645
649	649	660	665	669	681	691	704	704	707	707	715	715	717
718	729												
CENSORED DEATH DAYS													
370	370	370	370	370	370	370	370	370	370	370			

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Species/Strain: RATS/HSD

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MALE RATS

FIRST TERMINAL SACRIFICE AT 734 DAYS

KAPLAN-MEIER SURVIVAL PROBABILITY ESTIMATES (%)										
DOSE	TIME (DAYS)									
	90	180	270	365	425	485	545	605	665	734(A)
Control (38ppm)	100.0	100.0	98.3	98.3	98.3	98.3	88.3	80.3	60.2	36.1
3.5ppm SevZnDef	100.0	100.0	100.0	98.3	98.3	96.3	90.3	88.3	82.3	62.2
7ppm ZnDef	98.3	98.3	98.3	98.3	96.4	94.4	88.5	80.6	72.8	53.1
250ppmModZnExc	100.0	100.0	100.0	96.7	94.7	88.6	88.6	80.6	66.5	42.3
500ppm ZnExc	100.0	100.0	100.0	96.7	90.6	90.6	86.6	80.6	64.4	40.3

(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 734 DAYS

SURVIVAL SUMMARY STATISTICS

DOSE	Control (38ppm)	3.5ppm SevZnDef	7ppm ZnDef	250ppmModZnExc
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	36.1%	62.2%	53.1%	42.3%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.209	P=0.009N	P=0.144N	P=0.755N
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	616.9 (18.6)	620.9 (26.5)	593.8 (29.5)	602.5 (20.4)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	610.9 (18.4)	637.5 (18.8)	623.3 (20.0)	609.8 (18.7)

DOSE	500ppm ZnExc
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	40.3%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.670N
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	614.7 (20.9)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	613.7 (18.9)

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Lab: BAT

FEMALE RATS

FIRST TERMINAL SACRIFICE AT 725 DAYS

INDIVIDUAL SURVIVAL TIMES (DAYS)

DOSE = Control (38ppm)

TOTAL 60				UNCENSORED DEATHS 26				CENSORED DEATHS 9				TERMINAL 25			
UNCENSORED DEATH DAYS															
253	291	362	435	469	523	540	549	568	575	582	584	593	601		
609	621	635	656	676	676	677	681	690	692	700	704				
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370							

DOSE = 3.5ppm SevZnDef

TOTAL 60				UNCENSORED DEATHS 18				CENSORED DEATHS 10				TERMINAL 32			
UNCENSORED DEATH DAYS															
323	350	435	459	513	518	519	599	601	633	648	649	659	659		
690	700	701	714												
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370	370						

DOSE = 7ppm ZnDef

TOTAL 60				UNCENSORED DEATHS 17				CENSORED DEATHS 9				TERMINAL 34			
UNCENSORED DEATH DAYS															
202	447	463	483	572	582	615	635	644	644	663	676	676	676		
690	697	700													
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370							

DOSE = 250ppmModZnExc

TOTAL 60				UNCENSORED DEATHS 24				CENSORED DEATHS 9				TERMINAL 27			
UNCENSORED DEATH DAYS															
71	179	278	449	481	488	488	503	537	552	552	565	568	575		
601	635	654	656	659	659	687	692	701	717						
CENSORED DEATH DAYS															
370	370	370	370	370	370	370	370	370							

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**FEMALE RATS**

FIRST TERMINAL SACRIFICE AT 725 DAYS

INDIVIDUAL SURVIVAL TIMES (DAYS)

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**DOSE = 500ppm ZnExc**

TOTAL 60

UNCENSORED DEATHS 20

CENSORED DEATHS 9

TERMINAL 31

UNCENSORED DEATH DAYS

243	264	330	357	362	396	473	488	562	568	587	610	621	635
645	645	651	701	701	714								

CENSORED DEATH DAYS

370	370	370	370	370	370	370	370	370					
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DOSE	TIME (DAYS)									
	90	180	270	365	425	485	545	605	665	725(A)
Control (38ppm)	100.0	100.0	98.3	95.0	95.0	91.0	87.1	73.2	65.3	49.5
3.5ppm SevZnDef	100.0	100.0	100.0	96.7	96.7	92.6	86.6	82.6	72.5	64.4
7ppm ZnDef	100.0	100.0	98.3	98.3	98.3	92.4	92.4	88.5	78.7	66.9
250ppmModZnExc	98.3	96.7	96.7	95.0	95.0	91.0	83.1	71.3	61.4	53.4
500ppm ZnExc	100.0	100.0	96.7	91.7	89.7	87.7	85.7	79.7	67.8	61.8

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SURVIVAL SUMMARY STATISTICS

DOSE	Control (38ppm)	3.5ppm SevZnDef	7ppm ZnDef	250ppmModZnExc
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	49.5%	64.4%	66.9%	53.4%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.809	P=0.171N	P=0.085N	P=0.920N
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	574.7 (24.2)	576.1 (28.6)	592.1 (31.4)	539.5 (33.2)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	606.6 (18.9)	621.2 (18.9)	634.1 (18.5)	597.5 (21.2)

DOSE	500ppm ZnExc
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	61.8%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.369N
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	527.7 (34.0)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	606.0 (20.6)

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

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