

**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:** 11/22/2015  
**Time Report Requested:** 18:19:17  
**First Dose M/F:** 09/03/09 / 09/04/09  
**Lab:** BAT

Custom Report - Zinc Deficiency

**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 001 Control (38ppm)      Include 002 Control (38ppm)      Include 003 3.5ppm SevZnDef  
Include 004 3.5ppm SevZnDef      Include 005 7ppm ZnDef      Include 006 7ppm ZnDef  
**Study Gender:** Both  
**TDMSE Version:** 2.5.0.0\_sfh  
**PWG Approval Date:** 09/08/2015

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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 = 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							

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						

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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
7ppm ZnDef	98.3	98.3	98.3	98.3	96.4	94.4	88.5	80.6	72.8	53.1
3.5ppm SevZnDef	100.0	100.0	100.0	98.3	98.3	96.3	90.3	88.3	82.3	62.2

(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

<b>SURVIVAL SUMMARY STATISTICS</b>			
<b>DOSE</b>	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	36.1%	53.1%	62.2%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.008N	P=0.144N	P=0.009N
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	616.9 (18.6)	593.8 (29.5)	620.9 (26.5)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	610.9 (18.4)	623.3 (20.0)	637.5 (18.8)

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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 = 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 = 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						

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KAPLAN-MEIER SURVIVAL PROBABILITY ESTIMATES (%)										
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
7ppm ZnDef	100.0	100.0	98.3	98.3	98.3	92.4	92.4	88.5	78.7	66.9
3.5ppm SevZnDef	100.0	100.0	100.0	96.7	96.7	92.6	86.6	82.6	72.5	64.4

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FIRST TERMINAL SACRIFICE AT 725 DAYS

**SURVIVAL SUMMARY STATISTICS**

DOSE	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>SURVIVAL AT END OF STUDY</b> (KAPLAN-MEIER)	49.5%	66.9%	64.4%
<b>SIGNIFICANCE (B)</b> (LIFE TABLE)	P=0.134N	P=0.085N	P=0.171N
<b>MEAN DAY OF NATURAL DEATHS (C)</b> (STANDARD ERROR)	574.7 (24.2)	592.1 (31.4)	576.1 (28.6)
<b>MEAN LIFE SPAN (D)</b> (STANDARD ERROR)	606.6 (18.9)	634.1 (18.5)	621.2 (18.9)

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

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