

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA11: Statistical Analysis of Survival Data
Test Compound: alpha-Pinene
CAS Number: 80-56-8

Date Report Requested: 04/05/2023
Time Report Requested: 15:34:29
Lab: Battelle

Study Number: C20302B-03
Study Sex: Both
PWG Approval Date: See web page for date of PWG Approval
Version: v1.5.0
Stat Version: 2021.11.18S

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**Males: Core Animals
First Terminal Sacrifice at 730 Days
Individual Survival Times (Study Days)**

Dose = 0 ppm

Total: 50

Uncensored Deaths: 28

Censored Deaths: 0

Terminal: 22

UNCENSORED DEATH DAYS

142	323	477	514	515	567	572	572	605	605	607	613	614	617
622	637	643	670	681	683	698	698	705	708	708	709	715	717

CENSORED DEATH DAYS

None

Dose = 50 ppm

Total: 50

Uncensored Deaths: 31

Censored Deaths: 0

Terminal: 19

UNCENSORED DEATH DAYS

383	427	444	493	537	552	572	572	589	603	605	607	624	637
645	648	655	658	666	671	681	686	688	690	692	695	705	715
717	722	727											

CENSORED DEATH DAYS

None

Dose = 100 ppm

Total: 50

Uncensored Deaths: 29

Censored Deaths: 0

Terminal: 21

UNCENSORED DEATH DAYS

445	477	505	544	560	564	590	594	600	611	621	630	637	639
639	645	651	655	656	658	661	663	674	683	699	715	715	718
724													

CENSORED DEATH DAYS

None

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Males: Core Animals
First Terminal Sacrifice at 730 Days
Individual Survival Times (Study Days)

Dose = 200 ppm

Total: 50 Uncensored Deaths: 36 Censored Deaths: 0 Terminal: 14

UNCENSORED DEATH DAYS

241	322	323	342	393	411	482	488	526	531	560	593	596	602
623	636	645	648	651	659	660	669	669	677	681	683	683	692
694	696	696	699	705	709	712	716						

CENSORED DEATH DAYS

None

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Males: Core Animals
First Terminal Sacrifice at 730 Days

Dose (ppm)	Kaplan-Meier Survival Probability Estimates (%)									
	Time (Study Days)									
	90	180	270	365	425	485	545	605	665	730(A)
0	100.0	98.0	98.0	96.0	96.0	94.0	90.0	80.0	66.0	44.0
50	100.0	100.0	100.0	100.0	98.0	94.0	90.0	78.0	64.0	38.0
100	100.0	100.0	100.0	100.0	100.0	96.0	92.0	82.0	56.0	42.0
200	100.0	100.0	98.0	92.0	88.0	86.0	80.0	72.0	58.0	28.0

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Males: Core Animals
First Terminal Sacrifice at 730 Days

Survival Summary Statistics				
Dose	0 ppm	50 ppm	100 ppm	200 ppm
Survival At End Of Study (Kaplan-Meier)	44.0%	38.0%	42.0%	28.0%
Significance (B) (Life Table)	P=0.111	P=0.982	P=0.982	P=0.350
Mean Day Of Natural Deaths (C) (Standard Error)	604.9 (23.9)	622.8 (16.2)	626.7 (13.1)	592.0 (22.0)
Mean Life Span (D) (Standard Error)	659.9 (16.0)	663.5 (12.4)	670.1 (10.5)	630.7 (18.1)

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**Females: Core Animals
First Terminal Sacrifice at 731 Days
Individual Survival Times (Study Days)**

Dose = 0 ppm

Total: 50

Uncensored Deaths: 22

Censored Deaths: 0

Terminal: 28

UNCENSORED DEATH DAYS

429	430	435	484	512	512	513	562	566	599	607	617	619	619
648	658	676	677	690	696	699	701						

CENSORED DEATH DAYS

None

Dose = 50 ppm

Total: 50

Uncensored Deaths: 35

Censored Deaths: 0

Terminal: 15

UNCENSORED DEATH DAYS

208	387	390	442	449	491	504	506	512	517	522	522	543	544
544	555	555	574	583	612	626	630	639	640	667	675	681	682
688	688	698	703	712	713	719							

CENSORED DEATH DAYS

None

Dose = 100 ppm

Total: 50

Uncensored Deaths: 37

Censored Deaths: 0

Terminal: 13

UNCENSORED DEATH DAYS

264	295	382	393	393	422	436	449	459	476	479	487	505	516
521	528	532	544	544	551	572	572	584	585	592	601	614	614
635	645	648	659	671	691	702	708	717					

CENSORED DEATH DAYS

None

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Females: Core Animals
First Terminal Sacrifice at 731 Days
Individual Survival Times (Study Days)

Dose = 200 ppm

Total: 50

Uncensored Deaths: 45

Censored Deaths: 0

Terminal: 5

UNCENSORED DEATH DAYS

11	250	257	262	318	340	341	352	354	365	374	382	383	393
422	436	436	460	460	460	469	472	480	488	488	488	493	503
515	516	522	529	562	571	590	593	606	607	614	626	628	653
667	674	690											

CENSORED DEATH DAYS

None

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Females: Core Animals
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Dose (ppm)	Kaplan-Meier Survival Probability Estimates (%)									
	Time (Study Days)									
	90	180	270	365	425	485	545	605	665	731(A)
0	100.0	100.0	100.0	100.0	100.0	92.0	86.0	80.0	68.0	56.0
50	100.0	100.0	98.0	98.0	94.0	90.0	70.0	62.0	52.0	30.0
100	100.0	100.0	98.0	96.0	88.0	78.0	62.0	48.0	36.0	26.0
200	98.0	98.0	92.0	80.0	70.0	54.0	36.0	28.0	16.0	10.0

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Females: Core Animals
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Survival Summary Statistics				
Dose	0 ppm	50 ppm	100 ppm	200 ppm
Survival At End Of Study (Kaplan-Meier)	56.0%	30.0%	26.0%	10.0%
Significance (B) (Life Table)	P<0.001	P=0.015	P=0.002	P<0.001
Mean Day Of Natural Deaths (C) (Standard Error)	588.6 (19.6)	574.9 (19.3)	540.2 (18.4)	468.9 (20.2)
Mean Life Span (D) (Standard Error)	668.3 (13.2)	621.7 (16.9)	589.8 (18.1)	495.1 (21.4)

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LEGEND

(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).

Pairwise p-values include a Hommel adjustment for multiple comparisons.

Uncensored deaths include all early removals (prior to first terminal sacrifice day) due to either death or moribundity. Censored deaths include all early removals for reasons other than death or moribundity.

**** END OF REPORT ****