

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

Study Number: C20302B-03
Study Sex: Both
PWG Approval Date: See web page for date of PWG Approval
Version: v1.7.0
Stat Version: 2023.06.14S

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS IN THE ANALYSIS OF ALPHA-PINENE

Males: Core Animals

Organ	Morphology
SKIN	BASOSQUAMOUS TUMOR, BENIGN; BASAL CELL ADENOMA; ADENOMA; PAPILLOMA; KERATOACANTHOMA; TRICHOEPITHELIOMA OR SEBACEOUS GLAND ADENOMA
URINARY BLADDER	PAPILLOMA

Females: Core Animals

Organ	Morphology
MAMMARY GLAND	ADENOCARCINOMA ADENOMA ADENOMA OR ADENOCARCINOMA FIBROADENOMA FIBROMA; FIBROADENOMA OR ADENOMA FIBROMA; FIBROADENOMA; ADENOMA OR ADENOCARCINOMA
UTERUS	ADENOCARCINOMA POLYP: STROMAL SARCOMA, STROMAL OR POLYP, STROMAL SQUAMOUS CELL CARCINOMA SQUAMOUS CELL PAPILLOMA; SQUAMOUS CELL CARCINOMA; ADENOMA OR ADENOCARCINOMA

	Males: Core Animals			
	0 ppm	50 ppm	100 ppm	200 ppm
Disposition Summary				
Animals Initially In Study	50	50	50	50
Censored				
Early Deaths				
Found Dead	18	18	18	21
Sacrificed, Moribund	10	13	11	15
Survivors				
Scheduled Sacrifice, Terminal	22	19	21	14
Number Animals Examined Microscopically	50	50	50	50

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	1/40.04	0/39.35	2/40.25	0/35.74
POLY 3 PERCENT	2.5%	0%	4.97%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.773	P=0.977	P=0.502	P=0.974
POLY 1.5	P=0.787	P=0.977	P=0.505	P=0.975
POLY 6	P=0.756	P=0.976	P=0.495	P=0.972
COCH-ARM / FISHERS	P=0.812	P=1.000	P=0.500	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
LYMPHOMA; MALIGNANT (INCLUDES BILATERAL)				
TUMOR RATES				
OVERALL	2/50 (4%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	2/40.14	0/39.35	2/40.25	0/35.74
POLY 3 PERCENT	4.98%	0%	4.97%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.984	P=0.696	P=0.981
POLY 1.5	P=0.902	P=0.984	P=0.699	P=0.982
POLY 6	P=0.885	P=0.983	P=0.688	P=0.978
COCH-ARM / FISHERS	P=0.914	P=1.000	P=0.691	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA: BENIGN				
TUMOR RATES				
OVERALL	6/50 (12%)	10/50 (20%)	3/50 (6%)	3/50 (6%)
POLY 3 RATE	6/40.74	10/40.21	3/40.18	3/35.97
POLY 3 PERCENT	14.73%	24.87%	7.47%	8.34%
TERMINAL	4/22 (18%)	4/19 (21%)	2/21 (10%)	2/14 (14%)
FIRST INCIDENCE	515	648	683	669
STATISTICAL TESTS				
POLY 3	P=0.943	P=0.191	P=0.919	P=0.889
POLY 1.5	P=0.951	P=0.201	P=0.921	P=0.901
POLY 6	P=0.931	P=0.179	P=0.913	P=0.873
COCH-ARM / FISHERS	P=0.961	P=0.207	P=0.920	P=0.920

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA: MALIGNANT				
TUMOR RATES				
OVERALL	6/50 (12%)	6/50 (12%)	7/50 (14%)	4/50 (8%)
POLY 3 RATE	6/40.74	6/41.09	7/40.59	4/36.02
POLY 3 PERCENT	14.73%	14.6%	17.25%	11.11%
TERMINAL	2/22 (9%)	2/19 (11%)	4/21 (19%)	2/14 (14%)
FIRST INCIDENCE	572	572	655	683
STATISTICAL TESTS				
POLY 3	P=0.699	P=0.629	P=0.497	P=0.790
POLY 1.5	P=0.733	P=0.630	P=0.507	P=0.811
POLY 6	P=0.654	P=0.625	P=0.476	P=0.762
COCH-ARM / FISHERS	P=0.784	P=0.620	P=0.500	P=0.841

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA; BENIGN (INCLUDES BILATERAL)				
TUMOR RATES				
OVERALL	6/50 (12%)	11/50 (22%)	3/50 (6%)	3/50 (6%)
POLY 3 RATE	6/40.74	11/40.27	3/40.18	3/35.97
POLY 3 PERCENT	14.73%	27.32%	7.47%	8.34%
TERMINAL	4/22 (18%)	4/19 (21%)	2/21 (10%)	2/14 (14%)
FIRST INCIDENCE	515	648	683	669
STATISTICAL TESTS				
POLY 3	P=0.952	P=0.128	P=0.919	P=0.889
POLY 1.5	P=0.959	P=0.137	P=0.921	P=0.901
POLY 6	P=0.941	P=0.118	P=0.913	P=0.873
COCH-ARM / FISHERS	P=0.967	P=0.143	P=0.920	P=0.920

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA; MALIGNANT (INCLUDES BILATERAL)				
TUMOR RATES				
OVERALL	6/50 (12%)	6/50 (12%)	8/50 (16%)	5/50 (10%)
POLY 3 RATE	6/40.74	6/41.09	8/40.61	5/36.2
POLY 3 PERCENT	14.73%	14.6%	19.7%	13.81%
TERMINAL	2/22 (9%)	2/19 (11%)	4/21 (19%)	2/14 (14%)
FIRST INCIDENCE	572	572	655	683
STATISTICAL TESTS				
POLY 3	P=0.549	P=0.629	P=0.382	P=0.670
POLY 1.5	P=0.589	P=0.630	P=0.393	P=0.697
POLY 6	P=0.499	P=0.625	P=0.359	P=0.635
COCH-ARM / FISHERS	P=0.655	P=0.620	P=0.387	P=0.738

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND: CORTEX				
ADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	1/39.66	2/39.97	1/40	0/35.74
POLY 3 PERCENT	2.52%	5%	2.5%	0%
TERMINAL	1/22 (5%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	589	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.503	P=0.763	P=0.974
POLY 1.5	P=0.901	P=0.504	P=0.764	P=0.976
POLY 6	P=0.884	P=0.501	P=0.759	P=0.973
COCH-ARM / FISHERS	P=0.914	P=0.500	P=0.753	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
HEMANGIOSARCOMA				
TUMOR RATES				
OVERALL	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	2/39.66	1/39.96	1/40.05	0/35.74
POLY 3 PERCENT	5.04%	2.5%	2.5%	0%
TERMINAL	2/22 (9%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	537	718	---
STATISTICAL TESTS				
POLY 3	P=0.946	P=0.880	P=0.881	P=0.981
POLY 1.5	P=0.950	P=0.880	P=0.881	P=0.982
POLY 6	P=0.942	P=0.880	P=0.879	P=0.979
COCH-ARM / FISHERS	P=0.956	P=0.879	P=0.879	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
HEMANGIOSARCOMA OR HEMANGIOMA				
TUMOR RATES				
OVERALL	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	2/39.66	1/39.96	1/40.05	0/35.74
POLY 3 PERCENT	5.04%	2.5%	2.5%	0%
TERMINAL	2/22 (9%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	537	718	---
STATISTICAL TESTS				
POLY 3	P=0.946	P=0.880	P=0.881	P=0.981
POLY 1.5	P=0.950	P=0.880	P=0.881	P=0.982
POLY 6	P=0.942	P=0.880	P=0.879	P=0.979
COCH-ARM / FISHERS	P=0.956	P=0.879	P=0.879	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
MALIGNANT LYMPHOMA: HISTIOCYTIC, LYMPHOCYTIC, MIXED OR UNDIFFERENTIATED CELL TYPE				
TUMOR RATES				
OVERALL	2/50 (4%)	0/50 (0%)	4/50 (8%)	0/50 (0%)
POLY 3 RATE	2/40.14	0/39.35	4/40.28	0/35.74
POLY 3 PERCENT	4.98%	0%	9.93%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	2/21 (10%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.792	P=0.984	P=0.338	P=0.981
POLY 1.5	P=0.810	P=0.984	P=0.343	P=0.982
POLY 6	P=0.770	P=0.983	P=0.326	P=0.978
COCH-ARM / FISHERS	P=0.837	P=1.000	P=0.339	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN				
ASTROCYTOMA				
TUMOR RATES				
OVERALL	1/49 (2%)	2/50 (4%)	4/50 (8%)	1/50 (2%)
POLY 3 RATE	1/39.24	2/39.35	4/40.93	1/35.93
POLY 3 PERCENT	2.55%	5.08%	9.77%	2.78%
TERMINAL	0/22 (0%)	2/19 (11%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	617	730 (T)	594	681
STATISTICAL TESTS				
POLY 3	P=0.530	P=0.501	P=0.190	P=0.741
POLY 1.5	P=0.558	P=0.507	P=0.191	P=0.751
POLY 6	P=0.498	P=0.491	P=0.186	P=0.729
COCH-ARM / FISHERS	P=0.603	P=0.508	P=0.187	P=0.758

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN GLIOMA				
TUMOR RATES				
OVERALL	1/49 (2%)	0/50 (0%)	1/50 (2%)	2/50 (4%)
POLY 3 RATE	1/38.84	0/39.35	1/40.33	2/36.58
POLY 3 PERCENT	2.57%	0%	2.48%	5.47%
TERMINAL	1/22 (5%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	---	639	560
STATISTICAL TESTS				
POLY 3	P=0.234	P=0.978	P=0.769	P=0.479
POLY 1.5	P=0.239	P=0.978	P=0.770	P=0.489
POLY 6	P=0.229	P=0.977	P=0.767	P=0.468
COCH-ARM / FISHERS	P=0.251	P=1.000	P=0.758	P=0.508

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	2/49 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	2/39.32	0/39.35	1/40.25	0/35.74
POLY 3 PERCENT	5.09%	0%	2.48%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.946	P=0.984	P=0.883	P=0.981
POLY 1.5	P=0.949	P=0.985	P=0.884	P=0.983
POLY 6	P=0.942	P=0.984	P=0.879	P=0.979
COCH-ARM / FISHERS	P=0.954	P=1.000	P=0.883	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN				
OLIGODENDROGLIOMA; GLIOMA OR ASTROCYTOMA				
TUMOR RATES				
OVERALL	2/49 (4%)	2/50 (4%)	5/50 (10%)	3/50 (6%)
POLY 3 RATE	2/39.24	2/39.35	5/41.26	3/36.76
POLY 3 PERCENT	5.1%	5.08%	12.12%	8.16%
TERMINAL	1/22 (5%)	2/19 (11%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	617	730 (T)	594	560
STATISTICAL TESTS				
POLY 3	P=0.299	P=0.696	P=0.235	P=0.470
POLY 1.5	P=0.316	P=0.701	P=0.235	P=0.484
POLY 6	P=0.283	P=0.687	P=0.232	P=0.455
COCH-ARM / FISHERS	P=0.351	P=0.699	P=0.226	P=0.510

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
INTESTINE SMALL: ANY SITE				
ADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	1/39.66	2/39.35	1/40	0/35.74
POLY 3 PERCENT	2.52%	5.08%	2.5%	0%
TERMINAL	1/22 (5%)	2/19 (11%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	730 (T)	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.497	P=0.763	P=0.974
POLY 1.5	P=0.902	P=0.501	P=0.764	P=0.976
POLY 6	P=0.884	P=0.491	P=0.759	P=0.973
COCH-ARM / FISHERS	P=0.914	P=0.500	P=0.753	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
INTESTINE SMALL: ANY SITE				
ADENOMA OR ADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	1/39.66	2/39.35	2/40	0/35.74
POLY 3 PERCENT	2.52%	5.08%	5%	0%
TERMINAL	1/22 (5%)	2/19 (11%)	2/21 (10%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	730 (T)	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.842	P=0.497	P=0.503	P=0.974
POLY 1.5	P=0.855	P=0.501	P=0.505	P=0.976
POLY 6	P=0.827	P=0.491	P=0.496	P=0.973
COCH-ARM / FISHERS	P=0.875	P=0.500	P=0.500	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
INTESTINE, SMALL, JEJUNUM ADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	1/39.66	2/39.35	1/40	0/35.74
POLY 3 PERCENT	2.52%	5.08%	2.5%	0%
TERMINAL	1/22 (5%)	2/19 (11%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	730 (T)	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.497	P=0.763	P=0.974
POLY 1.5	P=0.902	P=0.501	P=0.764	P=0.976
POLY 6	P=0.884	P=0.491	P=0.759	P=0.973
COCH-ARM / FISHERS	P=0.914	P=0.500	P=0.753	P=1.000

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STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
KIDNEY				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	0/39.66	0/39.35	2/40.25	0/35.74
POLY 3 PERCENT	0%	0%	4.97%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	---	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.533		P=0.240	
POLY 1.5	P=0.555		P=0.241	
POLY 6	P=0.506		P=0.237	
COCH-ARM / FISHERS	P=0.595		P=0.247	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
CHOLANGIOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	2/50 (4%)	1/50 (2%)
POLY 3 RATE	0/39.66	0/39.35	2/40	1/35.74
POLY 3 PERCENT	0%	0%	5%	2.8%
TERMINAL	0/22 (0%)	0/19 (0%)	2/21 (10%)	1/14 (7%)
FIRST INCIDENCE	---	---	730 (T)	730 (T)
STATISTICAL TESTS				
POLY 3	P=0.205		P=0.238	P=0.479
POLY 1.5	P=0.219		P=0.240	P=0.487
POLY 6	P=0.190		P=0.234	P=0.470
COCH-ARM / FISHERS	P=0.246		P=0.247	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
HEPATOCELLULAR ADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY 3 RATE	1/39.66	2/39.53	0/40	0/35.74
POLY 3 PERCENT	2.52%	5.06%	0%	0%
TERMINAL	1/22 (5%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	692	---	---
STATISTICAL TESTS				
POLY 3	P=0.944	P=0.499	P=0.978	P=0.974
POLY 1.5	P=0.948	P=0.502	P=0.978	P=0.976
POLY 6	P=0.940	P=0.495	P=0.977	P=0.973
COCH-ARM / FISHERS	P=0.953	P=0.500	P=1.000	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
HEPATOCELLULAR ADENOMA OR HEPATOCELLULAR CARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	1/50 (2%)	1/50 (2%)
POLY 3 RATE	1/39.66	2/39.53	1/40.26	1/35.79
POLY 3 PERCENT	2.52%	5.06%	2.48%	2.79%
TERMINAL	1/22 (5%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	692	658	716
STATISTICAL TESTS				
POLY 3	P=0.666	P=0.499	P=0.765	P=0.738
POLY 1.5	P=0.680	P=0.502	P=0.765	P=0.747
POLY 6	P=0.650	P=0.495	P=0.762	P=0.728
COCH-ARM / FISHERS	P=0.704	P=0.500	P=0.753	P=0.753

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
HEPATOCELLULAR ADENOMA; HEPATOCELLULAR CARCINOMA OR HEPATOBLASTOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	1/50 (2%)	1/50 (2%)
POLY 3 RATE	1/39.66	2/39.53	1/40.26	1/35.79
POLY 3 PERCENT	2.52%	5.06%	2.48%	2.79%
TERMINAL	1/22 (5%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	692	658	716
STATISTICAL TESTS				
POLY 3	P=0.666	P=0.499	P=0.765	P=0.738
POLY 1.5	P=0.680	P=0.502	P=0.765	P=0.747
POLY 6	P=0.650	P=0.495	P=0.762	P=0.728
COCH-ARM / FISHERS	P=0.704	P=0.500	P=0.753	P=0.753

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	2/50 (4%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	2/40.14	0/39.35	2/40.25	0/35.74
POLY 3 PERCENT	4.98%	0%	4.97%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.984	P=0.696	P=0.981
POLY 1.5	P=0.902	P=0.984	P=0.699	P=0.982
POLY 6	P=0.885	P=0.983	P=0.688	P=0.978
COCH-ARM / FISHERS	P=0.914	P=1.000	P=0.691	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, BRONCHIAL LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	2/45 (4%)	0/42 (0%)	1/36 (3%)	0/43 (0%)
POLY 3 RATE	2/35.53	0/32.65	1/30.61	0/30.04
POLY 3 PERCENT	5.63%	0%	3.27%	0%
TERMINAL	0/20 (0%)	0/16 (0%)	1/19 (5%)	0/14 (0%)
FIRST INCIDENCE	622	---	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.934	P=0.982	P=0.852	P=0.979
POLY 1.5	P=0.938	P=0.982	P=0.848	P=0.980
POLY 6	P=0.930	P=0.981	P=0.857	P=0.977
COCH-ARM / FISHERS	P=0.945	P=1.000	P=0.834	P=1.000

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

Time Report Requested: 16:40:51

Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, MANDIBULAR				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	2/50 (4%)	0/50 (0%)	2/49 (4%)	0/50 (0%)
POLY 3 RATE	2/40.14	0/39.35	2/39.44	0/35.74
POLY 3 PERCENT	4.98%	0%	5.07%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.893	P=0.984	P=0.688	P=0.981
POLY 1.5	P=0.901	P=0.984	P=0.691	P=0.982
POLY 6	P=0.884	P=0.983	P=0.681	P=0.978
COCH-ARM / FISHERS	P=0.913	P=1.000	P=0.684	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, MEDIASTINAL LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	0/49 (0%)	0/47 (0%)	2/48 (4%)	0/47 (0%)
POLY 3 RATE	0/38.66	0/37.3	2/38.62	0/33.44
POLY 3 PERCENT	0%	0%	5.18%	0%
TERMINAL	0/21 (0%)	0/18 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	---	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.524		P=0.236	
POLY 1.5	P=0.547		P=0.237	
POLY 6	P=0.498		P=0.234	
COCH-ARM / FISHERS	P=0.589		P=0.242	

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, MESENTERIC				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/50 (2%)	0/49 (0%)	2/49 (4%)	0/49 (0%)
POLY 3 RATE	1/39.75	0/38.59	2/39.58	0/35.29
POLY 3 PERCENT	2.52%	0%	5.05%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	705	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.774	P=0.977	P=0.498	P=0.974
POLY 1.5	P=0.786	P=0.977	P=0.500	P=0.975
POLY 6	P=0.759	P=0.976	P=0.494	P=0.973
COCH-ARM / FISHERS	P=0.809	P=1.000	P=0.492	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND FIBROADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	1/50 (2%)	3/50 (6%)
POLY 3 RATE	1/40.38	0/39.35	1/40	3/36.2
POLY 3 PERCENT	2.48%	0%	2.5%	8.29%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	1/14 (7%)
FIRST INCIDENCE	477	---	730 (T)	645
STATISTICAL TESTS				
POLY 3	P=0.084	P=0.977	P=0.759	P=0.266
POLY 1.5	P=0.088	P=0.977	P=0.762	P=0.281
POLY 6	P=0.081	P=0.976	P=0.754	P=0.251
COCH-ARM / FISHERS	P=0.097	P=1.000	P=0.753	P=0.309

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND				
FIBROMA; FIBROADENOMA OR ADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	1/50 (2%)	3/50 (6%)
POLY 3 RATE	1/40.38	0/39.35	1/40	3/36.2
POLY 3 PERCENT	2.48%	0%	2.5%	8.29%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	1/14 (7%)
FIRST INCIDENCE	477	---	730 (T)	645
STATISTICAL TESTS				
POLY 3	P=0.084	P=0.977	P=0.759	P=0.266
POLY 1.5	P=0.088	P=0.977	P=0.762	P=0.281
POLY 6	P=0.081	P=0.976	P=0.754	P=0.251
COCH-ARM / FISHERS	P=0.097	P=1.000	P=0.753	P=0.309

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

Time Report Requested: 16:40:51

Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals

DOSE	0 ppm	50 ppm	100 ppm	200 ppm
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MAMMARY GLAND

FIBROMA; FIBROADENOMA; ADENOMA OR ADENOCARCINOMA

TUMOR RATES

OVERALL	1/50 (2%)	0/50 (0%)	1/50 (2%)	3/50 (6%)
POLY 3 RATE	1/40.38	0/39.35	1/40	3/36.2
POLY 3 PERCENT	2.48%	0%	2.5%	8.29%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	1/14 (7%)
FIRST INCIDENCE	477	---	730 (T)	645

STATISTICAL TESTS

POLY 3	P=0.084	P=0.977	P=0.759	P=0.266
POLY 1.5	P=0.088	P=0.977	P=0.762	P=0.281
POLY 6	P=0.081	P=0.976	P=0.754	P=0.251
COCH-ARM / FISHERS	P=0.097	P=1.000	P=0.753	P=0.309

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PANCREAS				
ADENOMA; ADENOCARCINOMA; CARCINOMA OR CYSTADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	3/48 (6%)	1/47 (2%)	0/49 (0%)
POLY 3 RATE	1/39.71	3/37.96	1/37.55	0/34.97
POLY 3 PERCENT	2.52%	7.9%	2.66%	0%
TERMINAL	0/22 (0%)	1/18 (6%)	1/19 (5%)	0/14 (0%)
FIRST INCIDENCE	717	637	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.904	P=0.288	P=0.749	P=0.974
POLY 1.5	P=0.912	P=0.292	P=0.750	P=0.975
POLY 6	P=0.894	P=0.283	P=0.744	P=0.972
COCH-ARM / FISHERS	P=0.924	P=0.293	P=0.737	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PANCREAS: ACINUS ADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	3/48 (6%)	1/47 (2%)	0/49 (0%)
POLY 3 RATE	1/39.71	3/37.96	1/37.55	0/34.97
POLY 3 PERCENT	2.52%	7.9%	2.66%	0%
TERMINAL	0/22 (0%)	1/18 (6%)	1/19 (5%)	0/14 (0%)
FIRST INCIDENCE	717	637	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.904	P=0.288	P=0.749	P=0.974
POLY 1.5	P=0.912	P=0.292	P=0.750	P=0.975
POLY 6	P=0.894	P=0.283	P=0.744	P=0.972
COCH-ARM / FISHERS	P=0.924	P=0.293	P=0.737	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PITUITARY GLAND				
ADENOMA OR CARCINOMA				
TUMOR RATES				
OVERALL	12/49 (24%)	11/50 (22%)	14/49 (29%)	11/50 (22%)
POLY 3 RATE	12/40.19	11/40.23	14/40.98	11/37.68
POLY 3 PERCENT	29.86%	27.35%	34.16%	29.2%
TERMINAL	7/22 (32%)	6/19 (32%)	9/21 (43%)	2/14 (14%)
FIRST INCIDENCE	617	624	564	596
STATISTICAL TESTS				
POLY 3	P=0.509	P=0.692	P=0.429	P=0.624
POLY 1.5	P=0.540	P=0.704	P=0.432	P=0.652
POLY 6	P=0.486	P=0.672	P=0.415	P=0.600
COCH-ARM / FISHERS	P=0.604	P=0.702	P=0.410	P=0.702

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PITUITARY GLAND: PARS DISTALIS ADENOMA				
TUMOR RATES				
OVERALL	11/49 (22%)	11/50 (22%)	14/49 (29%)	11/50 (22%)
POLY 3 RATE	11/40.09	11/40.23	14/40.98	11/37.68
POLY 3 PERCENT	27.44%	27.35%	34.16%	29.2%
TERMINAL	7/22 (32%)	6/19 (32%)	9/21 (43%)	2/14 (14%)
FIRST INCIDENCE	617	624	564	596
STATISTICAL TESTS				
POLY 3	P=0.429	P=0.604	P=0.337	P=0.532
POLY 1.5	P=0.460	P=0.617	P=0.341	P=0.562
POLY 6	P=0.406	P=0.582	P=0.325	P=0.508
COCH-ARM / FISHERS	P=0.527	P=0.616	P=0.322	P=0.616

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PITUITARY GLAND: PARS DISTALIS				
CARCINOMA				
TUMOR RATES				
OVERALL	1/49 (2%)	0/50 (0%)	0/49 (0%)	0/50 (0%)
POLY 3 RATE	1/39.29	0/39.35	0/39.33	0/35.74
POLY 3 PERCENT	2.55%	0%	0%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	705	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.965	P=0.978	P=0.978	P=0.975
POLY 1.5	P=0.967	P=0.978	P=0.978	P=0.976
POLY 6	P=0.964	P=0.977	P=0.977	P=0.973
COCH-ARM / FISHERS	P=0.969	P=1.000	P=1.000	P=1.000

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

Time Report Requested: 16:40:51

Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals

DOSE	0 ppm	50 ppm	100 ppm	200 ppm
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SKIN

BASAL OR SQUAMOUS CELL CARCINOMA; BASOSQUAMOUS TUMOR, MALIGNANT OR BENIGN; BASAL CELL ADENOMA; PAPILLOMA; KERATOACANTHOMA; TRICHOEPITHELIOMA; SEBACEOUS GLAND ADENOMA OR SEBACEOUS GLAND CARCINOMA

TUMOR RATES

OVERALL	1/50 (2%)	6/50 (12%)	3/50 (6%)	4/50 (8%)
POLY 3 RATE	1/40.65	6/40.15	3/40	4/35.74
POLY 3 PERCENT	2.46%	14.94%	7.5%	11.19%
TERMINAL	0/22 (0%)	1/19 (5%)	3/21 (14%)	4/14 (29%)
FIRST INCIDENCE	142	648	730 (T)	730 (T)

STATISTICAL TESTS

POLY 3	P=0.242	P=0.052	P=0.298	P=0.140
POLY 1.5	P=0.268	P=0.054	P=0.303	P=0.153
POLY 6	P=0.212	P=0.051	P=0.290	P=0.126
COCH-ARM / FISHERS	P=0.320	P=0.056	P=0.309	P=0.181

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
BASOSQUAMOUS TUMOR, BENIGN; BASAL CELL ADENOMA; ADENOMA; PAPILLOMA; KERATOACANTHOMA; TRICHOEPITHELIOMA OR SEBACEOUS GLAND ADENOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	6/50 (12%)	3/50 (6%)	4/50 (8%)
POLY 3 RATE	0/39.66	6/40.15	3/40	4/35.74
POLY 3 PERCENT	0%	14.94%	7.5%	11.19%
TERMINAL	0/22 (0%)	1/19 (5%)	3/21 (14%)	4/14 (29%)
FIRST INCIDENCE	---	648	730 (T)	730 (T)
STATISTICAL TESTS				
POLY 3	P=0.153	P=0.015*	P=0.119	P=0.047*
POLY 1.5	P=0.172	P=0.016*	P=0.121	P=0.052
POLY 6	P=0.131	P=0.015*	P=0.115	P=0.041*
COCH-ARM / FISHERS	P=0.205	P=0.013*	P=0.121	P=0.059

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROMA				
TUMOR RATES				
OVERALL	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	0/39.66	1/39.54	2/40	0/35.74
POLY 3 PERCENT	0%	2.53%	5%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	2/21 (10%)	0/14 (0%)
FIRST INCIDENCE	---	681	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.631	P=0.499	P=0.238	
POLY 1.5	P=0.653	P=0.501	P=0.240	
POLY 6	P=0.605	P=0.497	P=0.234	
COCH-ARM / FISHERS	P=0.689	P=0.500	P=0.247	

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROMA; FIBROSARCOMA; SARCOMA; MYXOMA; MYXOSARCOMA OR PLEOMORPHIC FIBROSARCOMA				
TUMOR RATES				
OVERALL	5/50 (10%)	8/50 (16%)	3/50 (6%)	8/50 (16%)
POLY 3 RATE	5/39.74	8/39.86	3/40.55	8/37.61
POLY 3 PERCENT	12.58%	20.07%	7.4%	21.27%
TERMINAL	4/22 (18%)	5/19 (26%)	2/21 (10%)	2/14 (14%)
FIRST INCIDENCE	708	681	560	323
STATISTICAL TESTS				
POLY 3	P=0.293	P=0.273	P=0.874	P=0.235
POLY 1.5	P=0.307	P=0.279	P=0.873	P=0.250
POLY 6	P=0.280	P=0.265	P=0.873	P=0.221
COCH-ARM / FISHERS	P=0.329	P=0.277	P=0.866	P=0.277

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROSARCOMA				
TUMOR RATES				
OVERALL	5/50 (10%)	6/50 (12%)	0/50 (0%)	7/50 (14%)
POLY 3 RATE	5/39.74	6/39.67	0/40	7/36.7
POLY 3 PERCENT	12.58%	15.12%	0%	19.07%
TERMINAL	4/22 (18%)	4/19 (21%)	0/21 (0%)	2/14 (14%)
FIRST INCIDENCE	708	686	---	636
STATISTICAL TESTS				
POLY 3	P=0.368	P=0.499	P=0.998	P=0.320
POLY 1.5	P=0.380	P=0.504	P=0.998	P=0.341
POLY 6	P=0.356	P=0.491	P=0.998	P=0.302
COCH-ARM / FISHERS	P=0.401	P=0.500	P=1.000	P=0.380

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROSARCOMA; SARCOMA; MYXOSARCOMA OR PLEOMORPHIC FIBROSARCOMA				
TUMOR RATES				
OVERALL	5/50 (10%)	7/50 (14%)	1/50 (2%)	8/50 (16%)
POLY 3 RATE	5/39.74	7/39.67	1/40.55	8/37.61
POLY 3 PERCENT	12.58%	17.64%	2.47%	21.27%
TERMINAL	4/22 (18%)	5/19 (26%)	0/21 (0%)	2/14 (14%)
FIRST INCIDENCE	708	686	560	323
STATISTICAL TESTS				
POLY 3	P=0.279	P=0.375	P=0.985	P=0.235
POLY 1.5	P=0.288	P=0.382	P=0.985	P=0.250
POLY 6	P=0.268	P=0.365	P=0.985	P=0.221
COCH-ARM / FISHERS	P=0.306	P=0.380	P=0.987	P=0.277

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
KERATOACANTHOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	4/50 (8%)	3/50 (6%)	1/50 (2%)
POLY 3 RATE	0/39.66	4/39.98	3/40	1/35.74
POLY 3 PERCENT	0%	10%	7.5%	2.8%
TERMINAL	0/22 (0%)	1/19 (5%)	3/21 (14%)	1/14 (7%)
FIRST INCIDENCE	---	648	730 (T)	730 (T)
STATISTICAL TESTS				
POLY 3	P=0.524	P=0.060	P=0.119	P=0.479
POLY 1.5	P=0.552	P=0.061	P=0.121	P=0.487
POLY 6	P=0.490	P=0.059	P=0.115	P=0.470
COCH-ARM / FISHERS	P=0.596	P=0.059	P=0.121	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
LIPOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	0/39.66	0/39.35	2/40	0/35.74
POLY 3 PERCENT	0%	0%	5%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	2/21 (10%)	0/14 (0%)
FIRST INCIDENCE	---	---	730 (T)	---
STATISTICAL TESTS				
POLY 3	P=0.533		P=0.238	
POLY 1.5	P=0.556		P=0.240	
POLY 6	P=0.508		P=0.234	
COCH-ARM / FISHERS	P=0.595		P=0.247	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
PAPILLOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	1/50 (2%)	0/50 (0%)	2/50 (4%)
POLY 3 RATE	0/39.66	1/39.51	0/40	2/35.74
POLY 3 PERCENT	0%	2.53%	0%	5.6%
TERMINAL	0/22 (0%)	0/19 (0%)	0/21 (0%)	2/14 (14%)
FIRST INCIDENCE	---	690	---	730 (T)
STATISTICAL TESTS				
POLY 3	P=0.126	P=0.499		P=0.214
POLY 1.5	P=0.131	P=0.501		P=0.223
POLY 6	P=0.120	P=0.497		P=0.204
COCH-ARM / FISHERS	P=0.140	P=0.500		P=0.247

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SPLEEN				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	2/50 (4%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	2/40.14	0/39.35	2/40.25	0/35.74
POLY 3 PERCENT	4.98%	0%	4.97%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	1/21 (5%)	0/14 (0%)
FIRST INCIDENCE	622	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.984	P=0.696	P=0.981
POLY 1.5	P=0.902	P=0.984	P=0.699	P=0.982
POLY 6	P=0.885	P=0.983	P=0.688	P=0.978
COCH-ARM / FISHERS	P=0.914	P=1.000	P=0.691	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
TESTIS				
LEYDIG CELL ADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	2/50 (4%)	2/50 (4%)
POLY 3 RATE	1/39.66	0/39.35	2/40.44	2/35.74
POLY 3 PERCENT	2.52%	0%	4.95%	5.6%
TERMINAL	1/22 (5%)	0/19 (0%)	1/21 (5%)	2/14 (14%)
FIRST INCIDENCE	730 (T)	---	600	730 (T)
STATISTICAL TESTS				
POLY 3	P=0.213	P=0.977	P=0.507	P=0.464
POLY 1.5	P=0.224	P=0.977	P=0.507	P=0.478
POLY 6	P=0.201	P=0.977	P=0.503	P=0.447
COCH-ARM / FISHERS	P=0.245	P=1.000	P=0.500	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
TESTIS: BILATERAL				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	0/39.66	0/39.35	2/40.28	0/35.74
POLY 3 PERCENT	0%	0%	4.97%	0%
TERMINAL	0/22 (0%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	---	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.533		P=0.240	
POLY 1.5	P=0.555		P=0.241	
POLY 6	P=0.506		P=0.237	
COCH-ARM / FISHERS	P=0.595		P=0.247	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYMUS				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/50 (2%)	0/48 (0%)	2/47 (4%)	0/48 (0%)
POLY 3 RATE	1/39.75	0/37.78	2/37.62	0/34.02
POLY 3 PERCENT	2.52%	0%	5.32%	0%
TERMINAL	0/22 (0%)	0/18 (0%)	1/20 (5%)	0/14 (0%)
FIRST INCIDENCE	705	---	661	---
STATISTICAL TESTS				
POLY 3	P=0.763	P=0.976	P=0.481	P=0.973
POLY 1.5	P=0.778	P=0.976	P=0.483	P=0.974
POLY 6	P=0.745	P=0.976	P=0.474	P=0.971
COCH-ARM / FISHERS	P=0.805	P=1.000	P=0.477	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYROID GLAND: C-CELL ADENOMA				
TUMOR RATES				
OVERALL	6/50 (12%)	6/50 (12%)	5/50 (10%)	4/50 (8%)
POLY 3 RATE	6/39.84	6/40.56	5/40.21	4/36.06
POLY 3 PERCENT	15.06%	14.79%	12.43%	11.09%
TERMINAL	4/22 (18%)	3/19 (16%)	4/21 (19%)	2/14 (14%)
FIRST INCIDENCE	705	572	674	677
STATISTICAL TESTS				
POLY 3	P=0.763	P=0.636	P=0.747	P=0.802
POLY 1.5	P=0.782	P=0.633	P=0.749	P=0.817
POLY 6	P=0.739	P=0.637	P=0.739	P=0.784
COCH-ARM / FISHERS	P=0.815	P=0.620	P=0.738	P=0.841

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 730 - 732				
Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYROID GLAND: C-CELL				
ADENOMA OR CARCINOMA				
TUMOR RATES				
OVERALL	8/50 (16%)	6/50 (12%)	8/50 (16%)	5/50 (10%)
POLY 3 RATE	8/40.27	6/40.56	8/40.21	5/36.2
POLY 3 PERCENT	19.86%	14.79%	19.9%	13.81%
TERMINAL	5/22 (23%)	3/19 (16%)	7/21 (33%)	2/14 (14%)
FIRST INCIDENCE	605	572	674	677
STATISTICAL TESTS				
POLY 3	P=0.741	P=0.816	P=0.609	P=0.844
POLY 1.5	P=0.766	P=0.815	P=0.618	P=0.859
POLY 6	P=0.709	P=0.815	P=0.588	P=0.825
COCH-ARM / FISHERS	P=0.809	P=0.806	P=0.607	P=0.883

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYROID GLAND: C-CELL, BILATERAL ADENOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	2/50 (4%)	1/50 (2%)
POLY 3 RATE	1/39.66	0/39.35	2/40	1/35.87
POLY 3 PERCENT	2.52%	0%	5%	2.79%
TERMINAL	1/22 (5%)	0/19 (0%)	2/21 (10%)	0/14 (0%)
FIRST INCIDENCE	730 (T)	---	730 (T)	696
STATISTICAL TESTS				
POLY 3	P=0.456	P=0.977	P=0.503	P=0.739
POLY 1.5	P=0.471	P=0.977	P=0.505	P=0.747
POLY 6	P=0.440	P=0.977	P=0.496	P=0.729
COCH-ARM / FISHERS	P=0.500	P=1.000	P=0.500	P=0.753

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 730 - 732

Males: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
URINARY BLADDER				
PAPILLOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	0/50 (0%)	3/50 (6%)
POLY 3 RATE	0/39.66	0/39.35	0/40	3/36.07
POLY 3 PERCENT	0%	0%	0%	8.32%
TERMINAL	0/22 (0%)	0/19 (0%)	0/21 (0%)	0/14 (0%)
FIRST INCIDENCE	---	---	---	683
STATISTICAL TESTS				
POLY 3	P=0.010**			P=0.101
POLY 1.5	P=0.010*			P=0.108
POLY 6	P=0.009**			P=0.095
COCH-ARM / FISHERS	P=0.012*			P=0.121

	Females: Core Animals			
	0 ppm	50 ppm	100 ppm	200 ppm
Disposition Summary				
Animals Initially In Study	50	50	50	50
Censored				
Early Deaths				
Found Dead	8	19	15	17
Sacrificed, Moribund	15	16	22	28
Survivors				
Scheduled Sacrifice, Terminal	27	15	13	5
Number Animals Examined Microscopically	50	50	50	50

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA: BENIGN				
TUMOR RATES				
OVERALL	3/50 (6%)	2/50 (4%)	1/49 (2%)	1/50 (2%)
POLY 3 RATE	3/40.27	2/33.86	1/29.59	1/19.57
POLY 3 PERCENT	7.45%	5.91%	3.38%	5.11%
TERMINAL	3/27 (11%)	2/15 (13%)	1/13 (8%)	1/5 (20%)
FIRST INCIDENCE	731 (T)	731 (T)	731 (T)	731 (T)
STATISTICAL TESTS				
POLY 3	P=0.781	P=0.764	P=0.888	P=0.785
POLY 1.5	P=0.835	P=0.788	P=0.909	P=0.862
POLY 6	P=0.721	P=0.729	P=0.855	P=0.677
COCH-ARM / FISHERS	P=0.913	P=0.819	P=0.939	P=0.941

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA: MALIGNANT				
TUMOR RATES				
OVERALL	2/50 (4%)	1/50 (2%)	2/49 (4%)	1/50 (2%)
POLY 3 RATE	2/40.27	1/34.49	2/30.11	1/20.1
POLY 3 PERCENT	4.97%	2.9%	6.64%	4.98%
TERMINAL	2/27 (7%)	0/15 (0%)	1/13 (8%)	0/5 (0%)
FIRST INCIDENCE	731 (T)	522	572	571
STATISTICAL TESTS				
POLY 3	P=0.516	P=0.849	P=0.585	P=0.711
POLY 1.5	P=0.603	P=0.861	P=0.628	P=0.788
POLY 6	P=0.438	P=0.831	P=0.531	P=0.618
COCH-ARM / FISHERS	P=0.757	P=0.879	P=0.684	P=0.879

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND				
PHEOCHROMOCYTOMA; BENIGN (INCLUDES BILATERAL)				
TUMOR RATES				
OVERALL	3/50 (6%)	2/50 (4%)	1/49 (2%)	1/50 (2%)
POLY 3 RATE	3/40.27	2/33.86	1/29.59	1/19.57
POLY 3 PERCENT	7.45%	5.91%	3.38%	5.11%
TERMINAL	3/27 (11%)	2/15 (13%)	1/13 (8%)	1/5 (20%)
FIRST INCIDENCE	731 (T)	731 (T)	731 (T)	731 (T)
STATISTICAL TESTS				
POLY 3	P=0.781	P=0.764	P=0.888	P=0.785
POLY 1.5	P=0.835	P=0.788	P=0.909	P=0.862
POLY 6	P=0.721	P=0.729	P=0.855	P=0.677
COCH-ARM / FISHERS	P=0.913	P=0.819	P=0.939	P=0.941

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

Time Report Requested: 16:40:51

Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals

DOSE	0 ppm	50 ppm	100 ppm	200 ppm
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ADRENAL GLAND

PHEOCHROMOCYTOMA; MALIGNANT (INCLUDES BILATERAL)

TUMOR RATES

OVERALL	2/50 (4%)	1/50 (2%)	2/49 (4%)	1/50 (2%)
POLY 3 RATE	2/40.27	1/34.49	2/30.11	1/20.1
POLY 3 PERCENT	4.97%	2.9%	6.64%	4.98%
TERMINAL	2/27 (7%)	0/15 (0%)	1/13 (8%)	0/5 (0%)
FIRST INCIDENCE	731 (T)	522	572	571

STATISTICAL TESTS

POLY 3	P=0.516	P=0.849	P=0.585	P=0.711
POLY 1.5	P=0.603	P=0.861	P=0.628	P=0.788
POLY 6	P=0.438	P=0.831	P=0.531	P=0.618
COCH-ARM / FISHERS	P=0.757	P=0.879	P=0.684	P=0.879

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ADRENAL GLAND: CORTEX				
ADENOMA				
TUMOR RATES				
OVERALL	2/50 (4%)	0/50 (0%)	1/49 (2%)	0/50 (0%)
POLY 3 RATE	2/40.27	0/33.86	1/30.34	0/19.57
POLY 3 PERCENT	4.97%	0%	3.3%	0%
TERMINAL	2/27 (7%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	731 (T)	---	459	---
STATISTICAL TESTS				
POLY 3	P=0.894	P=0.978	P=0.821	P=0.941
POLY 1.5	P=0.915	P=0.981	P=0.845	P=0.965
POLY 6	P=0.875	P=0.974	P=0.787	P=0.900
COCH-ARM / FISHERS	P=0.952	P=1.000	P=0.875	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
HEMANGIOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY 3 RATE	0/40.27	0/33.86	2/30.59	0/19.57
POLY 3 PERCENT	0%	0%	6.54%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	1/13 (8%)	0/5 (0%)
FIRST INCIDENCE	---	---	393	---
STATISTICAL TESTS				
POLY 3	P=0.265		P=0.181	
POLY 1.5	P=0.370		P=0.203	
POLY 6	P=0.181		P=0.158	
COCH-ARM / FISHERS	P=0.595		P=0.247	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
HEMANGIOSARCOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	0/40.27	0/33.86	1/30.21	0/19.57
POLY 3 PERCENT	0%	0%	3.31%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	---	592	---
STATISTICAL TESTS				
POLY 3	P=0.433		P=0.444	
POLY 1.5	P=0.513		P=0.466	
POLY 6	P=0.376		P=0.417	
COCH-ARM / FISHERS	P=0.694		P=0.500	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
HEMANGIOSARCOMA OR HEMANGIOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	3/50 (6%)	0/50 (0%)
POLY 3 RATE	0/40.27	0/33.86	3/31.06	0/19.57
POLY 3 PERCENT	0%	0%	9.66%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	1/13 (8%)	0/5 (0%)
FIRST INCIDENCE	---	---	393	---
STATISTICAL TESTS				
POLY 3	P=0.172		P=0.078	
POLY 1.5	P=0.285		P=0.093	
POLY 6	P=0.090		P=0.064	
COCH-ARM / FISHERS	P=0.539		P=0.121	

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
ALL ORGANS				
MALIGNANT LYMPHOMA: HISTIOCYTIC, LYMPHOCYTIC, MIXED OR UNDIFFERENTIATED CELL TYPE				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY 3 RATE	1/41.07	0/33.86	0/29.74	0/19.57
POLY 3 PERCENT	2.44%	0%	0%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.955	P=0.971	P=0.966	P=0.940
POLY 1.5	P=0.954	P=0.974	P=0.971	P=0.960
POLY 6	P=0.961	P=0.967	P=0.957	P=0.908
COCH-ARM / FISHERS	P=0.969	P=1.000	P=1.000	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN				
ASTROCYTOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	3/50 (6%)	0/50 (0%)
POLY 3 RATE	0/40.27	0/33.86	3/30.15	0/19.57
POLY 3 PERCENT	0%	0%	9.95%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	2/13 (15%)	0/5 (0%)
FIRST INCIDENCE	---	---	614	---
STATISTICAL TESTS				
POLY 3	P=0.176		P=0.075	
POLY 1.5	P=0.288		P=0.091	
POLY 6	P=0.095		P=0.060	
COCH-ARM / FISHERS	P=0.539		P=0.121	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN				
GLIOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	3/50 (6%)	0/50 (0%)	1/50 (2%)
POLY 3 RATE	0/40.27	3/34.77	0/29.74	1/19.57
POLY 3 PERCENT	0%	8.63%	0%	5.11%
TERMINAL	0/27 (0%)	1/15 (7%)	0/13 (0%)	1/5 (20%)
FIRST INCIDENCE	---	442	---	731 (T)
STATISTICAL TESTS				
POLY 3	P=0.365	P=0.094		P=0.371
POLY 1.5	P=0.458	P=0.103		P=0.419
POLY 6	P=0.283	P=0.082		P=0.324
COCH-ARM / FISHERS	P=0.634	P=0.121		P=0.500

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
BRAIN				
OLIGODENDROGLIOMA; GLIOMA OR ASTROCYTOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	3/50 (6%)	3/50 (6%)	1/50 (2%)
POLY 3 RATE	0/40.27	3/34.77	3/30.15	1/19.57
POLY 3 PERCENT	0%	8.63%	9.95%	5.11%
TERMINAL	0/27 (0%)	1/15 (7%)	2/13 (15%)	1/5 (20%)
FIRST INCIDENCE	---	442	614	731 (T)
STATISTICAL TESTS				
POLY 3	P=0.140	P=0.094	P=0.075	P=0.371
POLY 1.5	P=0.258	P=0.103	P=0.091	P=0.419
POLY 6	P=0.062	P=0.082	P=0.060	P=0.324
COCH-ARM / FISHERS	P=0.526	P=0.121	P=0.121	P=0.500

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
CHOLANGIOMA				
TUMOR RATES				
OVERALL	5/50 (10%)	6/50 (12%)	6/50 (12%)	0/50 (0%)
POLY 3 RATE	5/40.27	6/34.71	6/31	0/19.57
POLY 3 PERCENT	12.42%	17.28%	19.35%	0%
TERMINAL	5/27 (19%)	3/15 (20%)	3/13 (23%)	0/5 (0%)
FIRST INCIDENCE	731 (T)	612	544	---
STATISTICAL TESTS				
POLY 3	P=0.765	P=0.395	P=0.320	P=0.972
POLY 1.5	P=0.906	P=0.437	P=0.390	P=0.989
POLY 6	P=0.514	P=0.345	P=0.248	P=0.931
COCH-ARM / FISHERS	P=0.986	P=0.500	P=0.500	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
HEPATOCELLULAR ADENOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)
POLY 3 RATE	0/40.27	0/33.86	1/30.05	1/20.28
POLY 3 PERCENT	0%	0%	3.33%	4.93%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	---	645	488
STATISTICAL TESTS				
POLY 3	P=0.123		P=0.443	P=0.376
POLY 1.5	P=0.148		P=0.466	P=0.422
POLY 6	P=0.118		P=0.416	P=0.332
COCH-ARM / FISHERS	P=0.236		P=0.500	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
HEPATOCELLULAR ADENOMA OR HEPATOCELLULAR CARCINOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)
POLY 3 RATE	0/40.27	0/33.86	1/30.05	1/20.28
POLY 3 PERCENT	0%	0%	3.33%	4.93%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	---	645	488
STATISTICAL TESTS				
POLY 3	P=0.123		P=0.443	P=0.376
POLY 1.5	P=0.148		P=0.466	P=0.422
POLY 6	P=0.118		P=0.416	P=0.332
COCH-ARM / FISHERS	P=0.236		P=0.500	P=0.500

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
HEPATOCELLULAR ADENOMA; HEPATOCELLULAR CARCINOMA OR HEPATOBLASTOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)
POLY 3 RATE	0/40.27	0/33.86	1/30.05	1/20.28
POLY 3 PERCENT	0%	0%	3.33%	4.93%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	---	645	488
STATISTICAL TESTS				
POLY 3	P=0.123		P=0.443	P=0.376
POLY 1.5	P=0.148		P=0.466	P=0.422
POLY 6	P=0.118		P=0.416	P=0.332
COCH-ARM / FISHERS	P=0.236		P=0.500	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LIVER				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY 3 RATE	1/41.07	0/33.86	0/29.74	0/19.57
POLY 3 PERCENT	2.44%	0%	0%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.955	P=0.971	P=0.966	P=0.940
POLY 1.5	P=0.954	P=0.974	P=0.971	P=0.960
POLY 6	P=0.961	P=0.967	P=0.957	P=0.908
COCH-ARM / FISHERS	P=0.969	P=1.000	P=1.000	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, BRONCHIAL LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/37 (3%)	0/35 (0%)	0/34 (0%)	0/42 (0%)
POLY 3 RATE	1/30.64	0/23.73	0/21.07	0/14.68
POLY 3 PERCENT	3.26%	0%	0%	0%
TERMINAL	0/22 (0%)	0/10 (0%)	0/10 (0%)	0/3 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.956	P=0.969	P=0.964	P=0.937
POLY 1.5	P=0.949	P=0.972	P=0.969	P=0.962
POLY 6	P=0.966	P=0.965	P=0.958	P=0.895
COCH-ARM / FISHERS	P=0.968	P=1.000	P=1.000	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, MANDIBULAR				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/48 (2%)	0/49 (0%)	0/50 (0%)	0/46 (0%)
POLY 3 RATE	1/39.6	0/33.37	0/29.74	0/18.2
POLY 3 PERCENT	2.53%	0%	0%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.956	P=0.972	P=0.967	P=0.938
POLY 1.5	P=0.955	P=0.975	P=0.972	P=0.958
POLY 6	P=0.963	P=0.968	P=0.958	P=0.907
COCH-ARM / FISHERS	P=0.970	P=1.000	P=1.000	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, MEDIASTINAL LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/47 (2%)	0/49 (0%)	0/45 (0%)	0/50 (0%)
POLY 3 RATE	1/38.07	0/33.35	0/27.3	0/19.57
POLY 3 PERCENT	2.63%	0%	0%	0%
TERMINAL	0/24 (0%)	0/15 (0%)	0/12 (0%)	0/5 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.955	P=0.973	P=0.966	P=0.944
POLY 1.5	P=0.954	P=0.976	P=0.970	P=0.963
POLY 6	P=0.963	P=0.970	P=0.959	P=0.913
COCH-ARM / FISHERS	P=0.969	P=1.000	P=1.000	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
LYMPH NODE, MESENTERIC				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/50 (2%)	0/50 (0%)	0/49 (0%)	0/50 (0%)
POLY 3 RATE	1/41.07	0/33.86	0/29.51	0/19.57
POLY 3 PERCENT	2.44%	0%	0%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.954	P=0.971	P=0.965	P=0.940
POLY 1.5	P=0.953	P=0.974	P=0.971	P=0.960
POLY 6	P=0.961	P=0.967	P=0.957	P=0.908
COCH-ARM / FISHERS	P=0.968	P=1.000	P=1.000	P=1.000

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

Time Report Requested: 16:40:51

Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND				
ADENOCARCINOMA				
TUMOR RATES				
OVERALL	5/49 (10%)	7/50 (14%)	11/50 (22%)	25/50 (50%)
POLY 3 RATE	5/40.69	7/36.7	11/35.16	25/35.98
POLY 3 PERCENT	12.29%	19.07%	31.28%	69.49%
TERMINAL	1/26 (4%)	1/15 (7%)	3/13 (23%)	2/5 (40%)
FIRST INCIDENCE	512	449	264	250
STATISTICAL TESTS				
POLY 3	P<0.001**	P=0.305	P=0.038*	P<0.001**
POLY 1.5	P<0.001**	P=0.340	P=0.057	P<0.001**
POLY 6	P<0.001**	P=0.261	P=0.021*	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.394	P=0.093	P<0.001**

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND				
ADENOMA				
TUMOR RATES				
OVERALL	1/49 (2%)	0/50 (0%)	5/50 (10%)	0/50 (0%)
POLY 3 RATE	1/39.27	0/33.86	5/32.28	0/19.57
POLY 3 PERCENT	2.55%	0%	15.49%	0%
TERMINAL	1/26 (4%)	0/15 (0%)	1/13 (8%)	0/5 (0%)
FIRST INCIDENCE	731 (T)	---	382	---
STATISTICAL TESTS				
POLY 3	P=0.217	P=0.973	P=0.061	P=0.943
POLY 1.5	P=0.376	P=0.975	P=0.077	P=0.962
POLY 6	P=0.096	P=0.969	P=0.046*	P=0.912
COCH-ARM / FISHERS	P=0.668	P=1.000	P=0.107	P=1.000

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

Time Report Requested: 16:40:51

Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND				
ADENOMA OR ADENOCARCINOMA				
TUMOR RATES				
OVERALL	6/49 (12%)	7/50 (14%)	15/50 (30%)	25/50 (50%)
POLY 3 RATE	6/40.69	7/36.7	15/37.08	25/35.98
POLY 3 PERCENT	14.75%	19.07%	40.46%	69.49%
TERMINAL	2/26 (8%)	1/15 (7%)	4/13 (31%)	2/5 (40%)
FIRST INCIDENCE	512	449	264	250
STATISTICAL TESTS				
POLY 3	P<0.001**	P=0.419	P=0.008**	P<0.001**
POLY 1.5	P<0.001**	P=0.458	P=0.014*	P<0.001**
POLY 6	P<0.001**	P=0.368	P=0.004**	P<0.001**
COCH-ARM / FISHERS	P<0.001**	P=0.516	P=0.027*	P<0.001**

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND				
FIBROADENOMA				
TUMOR RATES				
OVERALL	28/49 (57%)	27/50 (54%)	28/50 (56%)	23/50 (46%)
POLY 3 RATE	28/42.04	27/39.06	28/37.5	23/29.85
POLY 3 PERCENT	66.61%	69.12%	74.66%	77.04%
TERMINAL	18/26 (69%)	9/15 (60%)	10/13 (77%)	4/5 (80%)
FIRST INCIDENCE	566	512	393	257
STATISTICAL TESTS				
POLY 3	P=0.143	P=0.498	P=0.278	P=0.224
POLY 1.5	P=0.420	P=0.579	P=0.408	P=0.519
POLY 6	P=0.036*	P=0.415	P=0.181	P=0.074
COCH-ARM / FISHERS	P=0.884	P=0.697	P=0.624	P=0.905

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
MAMMARY GLAND				
FIBROMA; FIBROADENOMA OR ADENOMA				
TUMOR RATES				
OVERALL	29/49 (59%)	27/50 (54%)	31/50 (62%)	23/50 (46%)
POLY 3 RATE	29/42.04	27/39.06	31/39.77	23/29.85
POLY 3 PERCENT	68.99%	69.12%	77.95%	77.04%
TERMINAL	19/26 (73%)	9/15 (60%)	10/13 (77%)	4/5 (80%)
FIRST INCIDENCE	566	512	382	257
STATISTICAL TESTS				
POLY 3	P=0.166	P=0.597	P=0.232	P=0.297
POLY 1.5	P=0.451	P=0.667	P=0.310	P=0.609
POLY 6	P=0.048*	P=0.520	P=0.180	P=0.109
COCH-ARM / FISHERS	P=0.903	P=0.765	P=0.468	P=0.935

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

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Final

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Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals

DOSE	0 ppm	50 ppm	100 ppm	200 ppm
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MAMMARY GLAND

FIBROMA; FIBROADENOMA; ADENOMA OR ADENOCARCINOMA

TUMOR RATES

OVERALL	33/49 (67%)	31/50 (62%)	38/50 (76%)	42/50 (84%)
POLY 3 RATE	33/43.24	31/41.03	38/43.2	42/43.63
POLY 3 PERCENT	76.31%	75.56%	87.95%	96.25%
TERMINAL	20/26 (77%)	10/15 (67%)	12/13 (92%)	5/5 (100%)
FIRST INCIDENCE	512	449	264	250

STATISTICAL TESTS

POLY 3	P<0.001**	P=0.642	P=0.099	P=0.002**
POLY 1.5	P=0.001**	P=0.699	P=0.150	P=0.005**
POLY 6	P<0.001**	P=0.573	P=0.060	P=0.002**
COCH-ARM / FISHERS	P=0.013*	P=0.778	P=0.232	P=0.044*

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PANCREAS				
ADENOMA; ADENOCARCINOMA; CARCINOMA OR CYSTADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/49 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY 3 RATE	1/39.43	0/33.86	0/29.74	0/19.57
POLY 3 PERCENT	2.54%	0%	0%	0%
TERMINAL	0/26 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	690	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.955	P=0.973	P=0.967	P=0.942
POLY 1.5	P=0.955	P=0.975	P=0.972	P=0.961
POLY 6	P=0.963	P=0.969	P=0.959	P=0.911
COCH-ARM / FISHERS	P=0.969	P=1.000	P=1.000	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
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Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PANCREAS: ACINUS ADENOMA				
TUMOR RATES				
OVERALL	1/49 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY 3 RATE	1/39.43	0/33.86	0/29.74	0/19.57
POLY 3 PERCENT	2.54%	0%	0%	0%
TERMINAL	0/26 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	690	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.955	P=0.973	P=0.967	P=0.942
POLY 1.5	P=0.955	P=0.975	P=0.972	P=0.961
POLY 6	P=0.963	P=0.969	P=0.959	P=0.911
COCH-ARM / FISHERS	P=0.969	P=1.000	P=1.000	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PITUITARY GLAND				
ADENOMA OR CARCINOMA				
TUMOR RATES				
OVERALL	27/50 (54%)	16/50 (32%)	14/48 (29%)	8/50 (16%)
POLY 3 RATE	27/44.51	16/36.98	14/31.2	8/22.96
POLY 3 PERCENT	60.66%	43.27%	44.88%	34.84%
TERMINAL	14/27 (52%)	8/15 (53%)	6/13 (46%)	2/5 (40%)
FIRST INCIDENCE	484	504	572	383
STATISTICAL TESTS				
POLY 3	P=0.986	P=0.969	P=0.950	P=0.987
POLY 1.5	P=0.999	P=0.984	P=0.984	P=0.999
POLY 6	P=0.897	P=0.928	P=0.843	P=0.876
COCH-ARM / FISHERS	P=1.000	P=0.993	P=0.997	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PITUITARY GLAND: PARS DISTALIS				
ADENOMA				
TUMOR RATES				
OVERALL	23/50 (46%)	15/50 (30%)	13/48 (27%)	8/50 (16%)
POLY 3 RATE	23/43.58	15/36.98	13/31.14	8/22.96
POLY 3 PERCENT	52.77%	40.56%	41.75%	34.84%
TERMINAL	12/27 (44%)	7/15 (47%)	6/13 (46%)	2/5 (40%)
FIRST INCIDENCE	484	504	572	383
STATISTICAL TESTS				
POLY 3	P=0.937	P=0.913	P=0.885	P=0.945
POLY 1.5	P=0.988	P=0.943	P=0.948	P=0.993
POLY 6	P=0.756	P=0.850	P=0.749	P=0.752
COCH-ARM / FISHERS	P=0.999	P=0.968	P=0.985	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
PITUITARY GLAND: PARS DISTALIS				
CARCINOMA				
TUMOR RATES				
OVERALL	4/50 (8%)	1/50 (2%)	1/48 (2%)	0/50 (0%)
POLY 3 RATE	4/41.19	1/33.86	1/29.11	0/19.57
POLY 3 PERCENT	9.71%	2.95%	3.44%	0%
TERMINAL	2/27 (7%)	1/15 (7%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	513	731 (T)	717	---
STATISTICAL TESTS				
POLY 3	P=0.970	P=0.947	P=0.925	P=0.960
POLY 1.5	P=0.980	P=0.957	P=0.944	P=0.982
POLY 6	P=0.954	P=0.932	P=0.896	P=0.913
COCH-ARM / FISHERS	P=0.991	P=0.972	P=0.969	P=1.000

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
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Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROMA				
TUMOR RATES				
OVERALL	1/50 (2%)	1/50 (2%)	0/50 (0%)	2/50 (4%)
POLY 3 RATE	1/40.47	1/33.86	0/29.74	2/19.57
POLY 3 PERCENT	2.47%	2.95%	0%	10.22%
TERMINAL	0/27 (0%)	1/15 (7%)	0/13 (0%)	2/5 (40%)
FIRST INCIDENCE	677	731 (T)	---	731 (T)
STATISTICAL TESTS				
POLY 3	P=0.275	P=0.720	P=0.966	P=0.279
POLY 1.5	P=0.289	P=0.737	P=0.972	P=0.359
POLY 6	P=0.291	P=0.695	P=0.958	P=0.208
COCH-ARM / FISHERS	P=0.366	P=0.753	P=1.000	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROMA; FIBROSARCOMA; SARCOMA; MYXOMA; MYXOSARCOMA OR PLEOMORPHIC FIBROSARCOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	2/50 (4%)	1/50 (2%)	2/50 (4%)
POLY 3 RATE	1/40.47	2/34.07	1/30.46	2/19.57
POLY 3 PERCENT	2.47%	5.87%	3.28%	10.22%
TERMINAL	0/27 (0%)	1/15 (7%)	0/13 (0%)	2/5 (40%)
FIRST INCIDENCE	677	675	479	731 (T)
STATISTICAL TESTS				
POLY 3	P=0.231	P=0.440	P=0.694	P=0.279
POLY 1.5	P=0.292	P=0.465	P=0.722	P=0.359
POLY 6	P=0.191	P=0.408	P=0.656	P=0.208
COCH-ARM / FISHERS	P=0.444	P=0.500	P=0.753	P=0.500

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROSARCOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	0/40.27	1/34.07	1/30.46	0/19.57
POLY 3 PERCENT	0%	2.94%	3.28%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	675	479	---
STATISTICAL TESTS				
POLY 3	P=0.479	P=0.467	P=0.445	
POLY 1.5	P=0.584	P=0.480	P=0.467	
POLY 6	P=0.380	P=0.449	P=0.419	
COCH-ARM / FISHERS	P=0.764	P=0.500	P=0.500	

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SKIN				
FIBROSARCOMA; SARCOMA; MYXOSARCOMA OR PLEOMORPHIC FIBROSARCOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY 3 RATE	0/40.27	1/34.07	1/30.46	0/19.57
POLY 3 PERCENT	0%	2.94%	3.28%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	675	479	---
STATISTICAL TESTS				
POLY 3	P=0.479	P=0.467	P=0.445	
POLY 1.5	P=0.584	P=0.480	P=0.467	
POLY 6	P=0.380	P=0.449	P=0.419	
COCH-ARM / FISHERS	P=0.764	P=0.500	P=0.500	

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
SPLEEN				
LYMPHOMA: MALIGNANT				
TUMOR RATES				
OVERALL	1/50 (2%)	0/49 (0%)	0/49 (0%)	0/50 (0%)
POLY 3 RATE	1/41.07	0/33.71	0/29.59	0/19.57
POLY 3 PERCENT	2.44%	0%	0%	0%
TERMINAL	0/27 (0%)	0/15 (0%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	429	---	---	---
STATISTICAL TESTS				
POLY 3	P=0.954	P=0.971	P=0.966	P=0.940
POLY 1.5	P=0.953	P=0.974	P=0.971	P=0.960
POLY 6	P=0.961	P=0.967	P=0.957	P=0.908
COCH-ARM / FISHERS	P=0.968	P=1.000	P=1.000	P=1.000

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYROID GLAND: C-CELL				
ADENOMA				
TUMOR RATES				
OVERALL	12/50 (24%)	12/50 (24%)	9/49 (18%)	6/50 (12%)
POLY 3 RATE	12/41.75	12/36.76	9/30.67	6/23.16
POLY 3 PERCENT	28.74%	32.65%	29.35%	25.91%
TERMINAL	8/27 (30%)	4/15 (27%)	4/13 (31%)	1/5 (20%)
FIRST INCIDENCE	599	517	614	341
STATISTICAL TESTS				
POLY 3	P=0.623	P=0.448	P=0.581	P=0.692
POLY 1.5	P=0.820	P=0.506	P=0.695	P=0.847
POLY 6	P=0.361	P=0.378	P=0.434	P=0.476
COCH-ARM / FISHERS	P=0.966	P=0.592	P=0.824	P=0.967

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYROID GLAND: C-CELL				
ADENOMA OR CARCINOMA				
TUMOR RATES				
OVERALL	13/50 (26%)	14/50 (28%)	9/49 (18%)	8/50 (16%)
POLY 3 RATE	13/41.75	14/36.92	9/30.67	8/23.93
POLY 3 PERCENT	31.14%	37.92%	29.35%	33.43%
TERMINAL	9/27 (33%)	5/15 (33%)	4/13 (31%)	1/5 (20%)
FIRST INCIDENCE	599	517	614	341
STATISTICAL TESTS				
POLY 3	P=0.529	P=0.344	P=0.663	P=0.532
POLY 1.5	P=0.751	P=0.404	P=0.768	P=0.732
POLY 6	P=0.281	P=0.277	P=0.517	P=0.319
COCH-ARM / FISHERS	P=0.946	P=0.500	P=0.876	P=0.930

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 08/20/2024

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Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
THYROID GLAND: C-CELL, BILATERAL ADENOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	1/50 (2%)	0/49 (0%)	1/50 (2%)
POLY 3 RATE	0/40.27	1/33.86	0/29.59	1/19.94
POLY 3 PERCENT	0%	2.95%	0%	5.01%
TERMINAL	0/27 (0%)	1/15 (7%)	0/13 (0%)	0/5 (0%)
FIRST INCIDENCE	---	731 (T)	---	628
STATISTICAL TESTS				
POLY 3	P=0.272	P=0.466		P=0.373
POLY 1.5	P=0.301	P=0.480		P=0.420
POLY 6	P=0.269	P=0.447		P=0.329
COCH-ARM / FISHERS	P=0.405	P=0.500		P=0.500

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
UTERUS				
ADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	7/49 (14%)	3/50 (6%)	4/49 (8%)
POLY 3 RATE	1/40.27	7/35.67	3/30.05	4/20.3
POLY 3 PERCENT	2.48%	19.62%	9.98%	19.7%
TERMINAL	1/27 (4%)	2/14 (14%)	2/13 (15%)	1/5 (20%)
FIRST INCIDENCE	731 (T)	442	648	606
STATISTICAL TESTS				
POLY 3	P=0.061	P=0.018*	P=0.209	P=0.048*
POLY 1.5	P=0.137	P=0.021*	P=0.246	P=0.081
POLY 6	P=0.023*	P=0.014*	P=0.171	P=0.029*
COCH-ARM / FISHERS	P=0.367	P=0.028*	P=0.309	P=0.175

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
UTERUS				
POLYP: STROMAL				
TUMOR RATES				
OVERALL	5/50 (10%)	2/49 (4%)	4/50 (8%)	8/49 (16%)
POLY 3 RATE	5/41.19	2/32.99	4/31.43	8/22.89
POLY 3 PERCENT	12.14%	6.06%	12.73%	34.94%
TERMINAL	3/27 (11%)	1/14 (7%)	1/13 (8%)	3/5 (60%)
FIRST INCIDENCE	484	698	532	318
STATISTICAL TESTS				
POLY 3	P=0.022*	P=0.899	P=0.610	P=0.038*
POLY 1.5	P=0.040*	P=0.917	P=0.672	P=0.091
POLY 6	P=0.013*	P=0.870	P=0.535	P=0.013*
COCH-ARM / FISHERS	P=0.099	P=0.941	P=0.757	P=0.264

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
UTERUS				
SARCOMA, STROMAL OR POLYP, STROMAL				
TUMOR RATES				
OVERALL	5/50 (10%)	2/49 (4%)	4/50 (8%)	8/49 (16%)
POLY 3 RATE	5/41.19	2/32.99	4/31.43	8/22.89
POLY 3 PERCENT	12.14%	6.06%	12.73%	34.94%
TERMINAL	3/27 (11%)	1/14 (7%)	1/13 (8%)	3/5 (60%)
FIRST INCIDENCE	484	698	532	318
STATISTICAL TESTS				
POLY 3	P=0.022*	P=0.899	P=0.610	P=0.038*
POLY 1.5	P=0.040*	P=0.917	P=0.672	P=0.091
POLY 6	P=0.013*	P=0.870	P=0.535	P=0.013*
COCH-ARM / FISHERS	P=0.099	P=0.941	P=0.757	P=0.264

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS				
TERMINAL REMOVAL DAYS: SD 731 - 732				
Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
UTERUS				
SQUAMOUS CELL CARCINOMA				
TUMOR RATES				
OVERALL	0/50 (0%)	0/49 (0%)	1/50 (2%)	3/49 (6%)
POLY 3 RATE	0/40.27	0/32.86	1/29.74	3/20.67
POLY 3 PERCENT	0%	0%	3.36%	14.51%
TERMINAL	0/27 (0%)	0/14 (0%)	1/13 (8%)	0/5 (0%)
FIRST INCIDENCE	---	---	731 (T)	460
STATISTICAL TESTS				
POLY 3	P=0.008**		P=0.441	P=0.043*
POLY 1.5	P=0.010**		P=0.465	P=0.062
POLY 6	P=0.009**		P=0.412	P=0.030*
COCH-ARM / FISHERS	P=0.020*		P=0.500	P=0.117

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

PA08: Statistical Analysis of Neoplastic Lesions
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 08/20/2024
Time Report Requested: 16:40:51
Lab: Battelle with EPL

STATISTICAL ANALYSIS OF NEOPLASTIC LESIONS
TERMINAL REMOVAL DAYS: SD 731 - 732

Females: Core Animals				
DOSE	0 ppm	50 ppm	100 ppm	200 ppm
UTERUS				
SQUAMOUS CELL PAPILLOMA; SQUAMOUS CELL CARCINOMA; ADENOMA OR ADENOCARCINOMA				
TUMOR RATES				
OVERALL	1/50 (2%)	7/49 (14%)	4/50 (8%)	6/49 (12%)
POLY 3 RATE	1/40.27	7/35.67	4/30.05	6/21.34
POLY 3 PERCENT	2.48%	19.62%	13.31%	28.11%
TERMINAL	1/27 (4%)	2/14 (14%)	3/13 (23%)	1/5 (20%)
FIRST INCIDENCE	731 (T)	442	648	460
STATISTICAL TESTS				
POLY 3	P=0.010**	P=0.018*	P=0.103	P=0.007**
POLY 1.5	P=0.029*	P=0.021*	P=0.130	P=0.015*
POLY 6	P=0.003**	P=0.014*	P=0.077	P=0.003**
COCH-ARM / FISHERS	P=0.133	P=0.028*	P=0.181	P=0.053

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA08: Statistical Analysis of Neoplastic Lesions

Test Compound: alpha-Pinene

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LEGEND

TUMOR RATES

Overall lesion rate: number of lesion-bearing animals/number of animals examined at site (percent lesion rate)

Poly 3 rate: number of lesion-bearing animals/poly-3 adjusted number of animals

Poly 3 percent: adjusted lifetime lesion incidence

Terminal lesion rate: number of lesion-bearing animals at terminal sacrifice/number of animals examined at site (percent lesion rate)

First incidence: earliest study day for removal of lesion-bearing animal (T = Terminal Sacrifice)

STATISTICAL TESTS

The Poly-3, Poly-1.5, and Poly-6 statistics apply intercurrent mortality adjustments to the Cochran-Armitage test.

The Cochran-Armitage and Fisher Exact tests directly compare the overall incidence rates.

All trend and pairwise p-values are reported as one-sided.

No statistical analysis is reported unless there are at least two lesions in one or more of the dose groups

Some organs did not receive a histopathologic evaluation unless a gross lesion was found. These organs are not included on this report.

Trend test p-values shown for the control group; pairwise test p-values shown for the dose groups

*Statistically significant at $P \leq 0.05$

**Statistically significant at $P \leq 0.01$

**** END OF REPORT ****