

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

PA02: Neoplastic Lesion Summary with Percent Incidence
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:59:31
Lab: Battelle with EPL

Study Number:

C20302B-03

Study Sex:

Both

PWG Approval Date:

See web page for date of PWG Approval

Version:

v1.6.4

Male: Fertility Males				
	Treatment Groups (ppm)			
	0	100	200	400
Disposition Summary				
Animals Initially In Study	25	25	25	25
Censored				
Early Deaths				
Survivors				
Scheduled Sacrifice, Terminal	25	25	25	25
Number Animals Examined Microscopically	25	25	25	25
ALIMENTARY SYSTEM				
No Tissues/Organs Examined				
CARDIOVASCULAR SYSTEM				
No Tissues/Organs Examined				
ENDOCRINE SYSTEM				
No Tissues/Organs Examined				
GENERAL BODY SYSTEM				
No Tissues/Organs Examined				
HEMATOPOIETIC SYSTEM				
No Tissues/Organs Examined				
HEPATOBIILIARY SYSTEM				
No Tissues/Organs Examined				
IMMUNE SYSTEM				
No Tissues/Organs Examined				
INTEGUMENTARY SYSTEM				
No Tissues/Organs Examined				
MUSCULOSKELETAL SYSTEM				
No Tissues/Organs Examined				

Male: Fertility Males				
	Treatment Groups (ppm)			
	0	100	200	400
NERVOUS SYSTEM				
No Tissues/Organs Examined				
REPRODUCTIVE SYSTEM				
EPIDIDYMIS	(25)	(25)	(25)	(25)
TESTIS	(25)	(25)	(25)	(25)
RESPIRATORY SYSTEM				
No Tissues/Organs Examined				
SPECIAL SENSES SYSTEM				
No Tissues/Organs Examined				
URINARY SYSTEM				
KIDNEY	(10)	(10)	(10)	(10)
URINARY BLADDER	(10)	(10)	(10)	(10)
No Systemic Lesions				

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Tumor Summary Data for Male Fertility Males	Treatment Groups (ppm)			
	0	100	200	400
Total Animals with Primary Neoplasms	0	0	0	0
Total Primary Neoplasms	0	0	0	0
Total Animals with Benign Neoplasms	0	0	0	0
Total Benign Neoplasms	0	0	0	0
Total Animals with Malignant Neoplasms	0	0	0	0
Total Malignant Neoplasms	0	0	0	0
Total Animals with Metastatic Neoplasms	0	0	0	0
Total Metastatic Neoplasms	0	0	0	0
Total Animals with Malignant Neoplasms Uncertain Primary Site	0	0	0	0

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Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
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

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Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
ALIMENTARY SYSTEM				
ESOPHAGUS	(50)	(50)	(50)	(50)
INTESTINE, LARGE, CECUM	(50)	(50)	(50)	(50)
ADENOCARCINOMA		1 (2%)		
INTESTINE, LARGE, COLON	(49)	(50)	(50)	(50)
INTESTINE, LARGE, RECTUM	(50)	(50)	(50)	(50)
INTESTINE, SMALL, DUODENUM	(50)	(50)	(50)	(50)
ADENOMA			1 (2%)	
INTESTINE, SMALL, ILEUM	(49)	(50)	(50)	(50)
INTESTINE, SMALL, JEJUNUM	(50)	(50)	(50)	(50)
ADENOCARCINOMA	1 (2%)	2 (4%)	1 (2%)	
MESENTERY	(1)	(0)	(1)	(2)
ORAL CAVITY	(0)	(1)	(0)	(0)
PANCREAS	(50)	(48)	(47)	(49)
ACINUS; ADENOMA	1 (2%)	3 (6%)	1 (2%)	
PHARYNX	(1)	(0)	(0)	(0)
SQUAMOUS CELL CARCINOMA	1 (100%)			
SALIVARY GLAND	(49)	(50)	(50)	(50)
STOMACH, FORESTOMACH	(50)	(50)	(50)	(50)
LYMPHOMA; MALIGNANT			1 (2%)	
STOMACH, GLANDULAR	(50)	(50)	(50)	(50)
TONGUE	(1)	(0)	(0)	(0)
FIBROSARCOMA	1 (100%)			
TOOTH	(0)	(1)	(0)	(0)

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Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
CARDIOVASCULAR SYSTEM				
AORTA	(50)	(50)	(50)	(50)
HEART	(50)	(50)	(50)	(50)
LYMPHOMA; MALIGNANT	1 (2%)			
SCHWANNOMA; MALIGNANT			1 (2%)	

Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
ENDOCRINE SYSTEM				
ADRENAL GLAND	(50)	(50)	(50)	(50)
CORTEX; ADENOMA	1 (2%)	2 (4%)	1 (2%)	
BILATERAL; LYMPHOMA; MALIGNANT	1 (2%)			
LYMPHOMA; MALIGNANT	1 (2%)		2 (4%)	
BILATERAL; PHEOCHROMOCYTOMA; BENIGN		1 (2%)		
BILATERAL; PHEOCHROMOCYTOMA; MALIGNANT			1 (2%)	1 (2%)
PHEOCHROMOCYTOMA; BENIGN	6 (12%)	10 (20%)	3 (6%)	3 (6%)
PHEOCHROMOCYTOMA; MALIGNANT	6 (12%)	6 (12%)	7 (14%)	4 (8%)
PANCREATIC ISLET	(1)	(2)	(3)	(1)
ADENOMA	1 (100%)		1 (33%)	1 (100%)
CARCINOMA		2 (100%)	1 (33%)	
PARATHYROID GLAND	(45)	(48)	(49)	(45)
CARCINOMA; METASTATIC			1 (2%)	
PINEAL GLAND	(1)	(0)	(0)	(0)
PITUITARY GLAND	(49)	(50)	(49)	(50)
PARS DISTALIS; ADENOMA	11 (22%)	11 (22%)	14 (29%)	11 (22%)
PARS INTERMEDIA; ADENOMA	1 (2%)			
PARS DISTALIS; CARCINOMA	1 (2%)			
LYMPHOMA; MALIGNANT	1 (2%)		1 (2%)	
THYROID GLAND	(50)	(50)	(50)	(50)
C-CELL, BILATERAL; ADENOMA	1 (2%)		2 (4%)	1 (2%)
C-CELL; ADENOMA	6 (12%)	6 (12%)	5 (10%)	4 (8%)
FOLLICULAR CELL; ADENOMA				1 (2%)
C-CELL; CARCINOMA	1 (2%)		1 (2%)	
GENERAL BODY SYSTEM				
No Tissues/Organs Examined				

Male: Core Animals				
Treatment Groups (ppm)				
	0	50	100	200
HEMATOPOIETIC SYSTEM				
BONE MARROW	(50)	(50)	(50)	(50)
HISTIOCYTIC SARCOMA				1 (2%)
LYMPHOMA; MALIGNANT	1 (2%)		1 (2%)	
HEPATOBIILIARY SYSTEM				
LIVER	(50)	(50)	(50)	(50)
CHOLANGIOMA			2 (4%)	1 (2%)
HEPATOCELLULAR ADENOMA	1 (2%)	2 (4%)		
HEPATOCELLULAR CARCINOMA			1 (2%)	1 (2%)
HISTIOCYTIC SARCOMA				1 (2%)
LYMPHOMA; MALIGNANT	2 (4%)		2 (4%)	

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Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
IMMUNE SYSTEM				
LYMPH NODE	(0)	(1)	(1)	(1)
LUMBAR; HISTIOCYTIC SARCOMA				1 (100%)
LUMBAR; LYMPHOMA; MALIGNANT			1 (100%)	
RENAL; LYMPHOMA; MALIGNANT			1 (100%)	
LYMPH NODE, BRONCHIAL	(45)	(42)	(36)	(43)
HISTIOCYTIC SARCOMA			1 (3%)	1 (2%)
LYMPHOMA; MALIGNANT	2 (4%)		1 (3%)	
LYMPH NODE, MANDIBULAR	(50)	(50)	(49)	(50)
LYMPHOMA; MALIGNANT	2 (4%)		2 (4%)	
LYMPH NODE, MEDIASTINAL	(49)	(47)	(48)	(47)
HISTIOCYTIC SARCOMA			1 (2%)	1 (2%)
LYMPHOMA; MALIGNANT			2 (4%)	
LYMPH NODE, MESENTERIC	(50)	(49)	(49)	(49)
CARCINOMA; METASTATIC		1 (2%)		
HEMANGIOSARCOMA	1 (2%)			
LYMPHOMA; MALIGNANT	1 (2%)		2 (4%)	
LYMPH NODE, POPLITEAL	(0)	(0)	(0)	(1)
SPLEEN	(50)	(50)	(50)	(50)
HISTIOCYTIC SARCOMA				1 (2%)
LYMPHOMA; MALIGNANT	2 (4%)		2 (4%)	
THYMUS	(50)	(48)	(47)	(48)
HISTIOCYTIC SARCOMA				1 (2%)
LYMPHOMA; MALIGNANT	1 (2%)		2 (4%)	

Male: Core Animals				
Treatment Groups (ppm)				
	0	50	100	200
INTEGUMENTARY SYSTEM				
SKIN	(50)	(50)	(50)	(50)
SEBACEOUS GLAND; ADENOMA		1 (2%)		
SWEAT GLAND; ADENOMA				1 (2%)
BASAL CELL CARCINOMA	1 (2%)			
FIBROMA		1 (2%)	2 (4%)	
FIBROSARCOMA	5 (10%)	6 (12%)		7 (14%)
HEMANGIOSARCOMA			1 (2%)	
KERATOACANTHOMA		4 (8%)	3 (6%)	1 (2%)
LIPOMA			2 (4%)	
LIPOSARCOMA		1 (2%)		
NEURAL CREST TUMOR; BENIGN				1 (2%)
PAPILLOMA		1 (2%)		2 (4%)
PLEOMORPHIC FIBROSARCOMA		1 (2%)	1 (2%)	1 (2%)
SCHWANNOMA; MALIGNANT		1 (2%)		
MUSCULOSKELETAL SYSTEM				
BONE	(1)	(0)	(0)	(1)
HEMANGIOSARCOMA	1 (100%)			
OSTEOSARCOMA				1 (100%)
BONE, FEMUR	(50)	(50)	(50)	(50)
SKELETAL MUSCLE	(0)	(1)	(0)	(0)
FIBROSARCOMA		1 (100%)		

Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
NERVOUS SYSTEM				
BRAIN	(49)	(50)	(50)	(50)
ASTROCYTOMA	1 (2%)	2 (4%)	4 (8%)	1 (2%)
GLIOMA	1 (2%)		1 (2%)	2 (4%)
GRANULAR CELL TUMOR; BENIGN	1 (2%)		1 (2%)	1 (2%)
HEMANGIOSARCOMA		1 (2%)		
LYMPHOMA; MALIGNANT	2 (4%)		1 (2%)	
OSTEOSARCOMA; METASTATIC				1 (2%)
REPRODUCTIVE SYSTEM				
EPIDIDYMIS	(50)	(50)	(50)	(50)
MAMMARY GLAND	(50)	(50)	(50)	(50)
FIBROADENOMA	1 (2%)		1 (2%)	3 (6%)
PREPUTIAL GLAND	(50)	(50)	(50)	(49)
ADENOMA				1 (2%)
SQUAMOUS CELL CARCINOMA	1 (2%)			1 (2%)
PROSTATE	(50)	(50)	(50)	(50)
ADENOMA	1 (2%)	1 (2%)		1 (2%)
SEMINAL VESICLE	(50)	(50)	(50)	(50)
ADENOMA				1 (2%)
TESTIS	(50)	(50)	(50)	(50)
LEYDIG CELL ADENOMA	1 (2%)		2 (4%)	2 (4%)
ARTERIOLE, BILATERAL; LYMPHOMA; MALIGNANT	1 (2%)			
BILATERAL; LYMPHOMA; MALIGNANT			2 (4%)	

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Male: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
RESPIRATORY SYSTEM				
LARYNX	(50)	(50)	(50)	(50)
LYMPHOMA; MALIGNANT			1 (2%)	
LUNG	(50)	(50)	(50)	(50)
CYSTIC KERATINIZING EPITHELIOMA		1 (2%)		
FIBROSARCOMA; METASTATIC				1 (2%)
HISTIOCYTIC SARCOMA				1 (2%)
LYMPHOMA; MALIGNANT	1 (2%)		1 (2%)	
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (2%)
NOSE	(50)	(50)	(50)	(50)
LYMPHOMA; MALIGNANT			1 (2%)	
SQUAMOUS CELL CARCINOMA				1 (2%)
TRACHEA	(50)	(50)	(50)	(50)
LYMPHOMA; MALIGNANT			1 (2%)	
SPECIAL SENSES SYSTEM				
EYE	(50)	(50)	(50)	(50)
BILATERAL; LYMPHOMA; MALIGNANT			1 (2%)	
LYMPHOMA; MALIGNANT	1 (2%)			
OSTEOSARCOMA; METASTATIC				1 (2%)
HARDERIAN GLAND	(50)	(50)	(50)	(50)
BILATERAL; LYMPHOMA; MALIGNANT			1 (2%)	
OSTEOSARCOMA; METASTATIC				1 (2%)
ZYMBAL'S GLAND	(1)	(0)	(1)	(0)
CARCINOMA	1 (100%)			
SQUAMOUS CELL CARCINOMA			1 (100%)	

Male: Core Animals				
Treatment Groups (ppm)				
	0	50	100	200
URINARY SYSTEM				
KIDNEY	(50)	(50)	(50)	(50)
AMPHOPHILIC-VACUOLAR ADENOMA		1 (2%)		
LYMPHOMA; MALIGNANT			2 (4%)	
URINARY BLADDER	(50)	(50)	(50)	(50)
PAPILLOMA				3 (6%)
SYSTEMIC LESIONS				
Multiple Organ(a)	(50)	(50)	(50)	(50)
HEMANGIOSARCOMA	2 (4%)	1 (2%)	1 (2%)	
HISTIOCYTIC SARCOMA			1 (2%)	1 (2%)
LYMPHOMA	2 (4%)		4 (8%)	

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Tumor Summary Data for Male Core Animals	Treatment Groups (ppm)			
	0	50	100	200
Total Animals with Primary Neoplasms	0	0	0	0
Total Primary Neoplasms	0	0	0	0
Total Animals with Benign Neoplasms	24	34	24	26
Total Benign Neoplasms	33	45	41	39
Total Animals with Malignant Neoplasms	20	19	16	16
Total Malignant Neoplasms	41	22	49	29
Total Animals with Metastatic Neoplasms	0	1	1	3
Total Metastatic Neoplasms	0	1	1	5
Total Animals with Malignant Neoplasms Uncertain Primary Site	0	0	0	0

Female: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
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

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	Treatment Groups (ppm)			
	0	50	100	200
ALIMENTARY SYSTEM				
ESOPHAGUS	(50)	(50)	(50)	(50)
INTESTINE, LARGE, CECUM	(50)	(50)	(50)	(50)
INTESTINE, LARGE, COLON	(50)	(50)	(50)	(50)
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (2%)
INTESTINE, LARGE, RECTUM	(50)	(50)	(50)	(50)
INTESTINE, SMALL, DUODENUM	(50)	(50)	(50)	(50)
LYMPHOMA; MALIGNANT	1 (2%)			
INTESTINE, SMALL, ILEUM	(50)	(50)	(50)	(50)
CARCINOMA; METASTATIC		2 (4%)		
LYMPHOMA; MALIGNANT	1 (2%)			
INTESTINE, SMALL, JEJUNUM	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC				1 (2%)
MESENTERY	(0)	(4)	(0)	(2)
ADENOCARCINOMA; METASTATIC		2 (50%)		1 (50%)
CARCINOMA; METASTATIC		1 (25%)		
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (50%)
PANCREAS	(49)	(50)	(50)	(50)
ACINUS; ADENOCARCINOMA; METASTATIC		1 (2%)		1 (2%)
ACINUS; ADENOMA	1 (2%)			
ACINUS; CARCINOMA; METASTATIC		3 (6%)		
ACINUS; HISTIOCYTIC SARCOMA		1 (2%)		
ACINUS; SQUAMOUS CELL CARCINOMA; METASTATIC				1 (2%)
SALIVARY GLAND	(50)	(50)	(50)	(50)
CARCINOMA; METASTATIC			1 (2%)	
STOMACH, FORESTOMACH	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC				1 (2%)
PAPILLOMA	1 (2%)			

Female: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
STOMACH, GLANDULAR	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC				1 (2%)
CARDIOVASCULAR SYSTEM				
AORTA	(50)	(50)	(49)	(50)
HEART	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC				2 (4%)
CARCINOMA; METASTATIC		1 (2%)		
HEMANGIOMA			1 (2%)	

Female: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
ENDOCRINE SYSTEM				
ADRENAL GLAND	(50)	(50)	(49)	(50)
CORTEX; ADENOCARCINOMA	1 (2%)			
ADENOCARCINOMA; METASTATIC		1 (2%)		1 (2%)
CORTEX; ADENOMA	2 (4%)		1 (2%)	
CARCINOMA; METASTATIC		1 (2%)		
PHEOCHROMOCYTOMA; BENIGN	3 (6%)	2 (4%)	1 (2%)	1 (2%)
PHEOCHROMOCYTOMA; MALIGNANT	2 (4%)	1 (2%)	2 (4%)	1 (2%)
PANCREATIC ISLET	(3)	(0)	(0)	(0)
ADENOMA	1 (33%)			
PARATHYROID GLAND	(48)	(47)	(49)	(48)
PITUITARY GLAND	(50)	(50)	(48)	(50)
PARS DISTALIS; ADENOMA	23 (46%)	15 (30%)	13 (27%)	8 (16%)
PARS INTERMEDIA; ADENOMA	1 (2%)			
PARS DISTALIS; CARCINOMA	4 (8%)	1 (2%)	1 (2%)	
PARS NERVOSA; GLIOMA			1 (2%)	
THYROID GLAND	(50)	(50)	(49)	(50)
ADENOCARCINOMA; METASTATIC				1 (2%)
C-CELL, BILATERAL; ADENOMA		1 (2%)		1 (2%)
C-CELL; ADENOMA	12 (24%)	12 (24%)	9 (18%)	6 (12%)
FOLLICULAR CELL; ADENOMA			1 (2%)	
C-CELL; CARCINOMA	1 (2%)	1 (2%)		1 (2%)
GENERAL BODY SYSTEM				
No Tissues/Organs Examined				
HEMATOPOIETIC SYSTEM				
BONE MARROW	(50)	(50)	(50)	(48)
LYMPHOMA; MALIGNANT	1 (2%)			

Female: Core Animals				
Treatment Groups (ppm)				
	0	50	100	200
HEPATOBIILIARY SYSTEM				
LIVER	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC		1 (2%)		1 (2%)
CARCINOMA; METASTATIC		2 (4%)		
CHOLANGIOMA	5 (10%)	6 (12%)	6 (12%)	
HEPATOCELLULAR ADENOMA			1 (2%)	1 (2%)
HISTIOCYTIC SARCOMA		1 (2%)		
LYMPHOMA; MALIGNANT	1 (2%)			
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (2%)

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	Treatment Groups (ppm)			
	0	50	100	200
IMMUNE SYSTEM				
LYMPH NODE	(2)	(4)	(1)	(0)
AXILLARY; ADENOCARCINOMA; METASTATIC		1 (25%)		
LUMBAR; HISTIOCYTIC SARCOMA		1 (25%)		
LYMPH NODE, BRONCHIAL	(37)	(35)	(34)	(42)
CARCINOMA; METASTATIC		1 (3%)		
LYMPHOMA; MALIGNANT	1 (3%)			
LYMPH NODE, MANDIBULAR	(48)	(49)	(50)	(46)
LYMPHOMA; MALIGNANT	1 (2%)			
LYMPH NODE, MEDIASTINAL	(47)	(49)	(45)	(50)
ADENOCARCINOMA; METASTATIC		2 (4%)		1 (2%)
CARCINOMA; METASTATIC		2 (4%)		
LYMPHOMA; MALIGNANT	1 (2%)			
LYMPH NODE, MESENTERIC	(50)	(50)	(49)	(50)
CARCINOMA; METASTATIC		3 (6%)		
HISTIOCYTIC SARCOMA		1 (2%)		
LYMPHOMA; MALIGNANT	1 (2%)			
SPLEEN	(50)	(49)	(49)	(50)
ADENOCARCINOMA; METASTATIC				1 (2%)
CARCINOMA; METASTATIC		1 (2%)		
HISTIOCYTIC SARCOMA		1 (2%)		
LYMPHOMA; MALIGNANT	1 (2%)			
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (2%)
THYMUS	(47)	(46)	(48)	(49)
ADENOCARCINOMA; METASTATIC				2 (4%)
CARCINOMA; METASTATIC		1 (2%)		
THYMOMA		1 (2%)		

Female: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
INTEGUMENTARY SYSTEM				
SKIN	(50)	(50)	(50)	(50)
FIBROMA	1 (2%)	1 (2%)		2 (4%)
FIBROSARCOMA		1 (2%)	1 (2%)	
MUSCULOSKELETAL SYSTEM				
BONE	(0)	(1)	(0)	(0)
BONE, FEMUR	(50)	(50)	(50)	(50)
SKELETAL MUSCLE	(0)	(2)	(0)	(3)
ADENOCARCINOMA; METASTATIC		1 (50%)		1 (33%)
CARCINOMA; METASTATIC		1 (50%)		
FIBROSARCOMA				1 (33%)
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (33%)
NERVOUS SYSTEM				
BRAIN	(50)	(50)	(50)	(50)
ASTROCYTOMA			3 (6%)	
GLIOMA		3 (6%)		1 (2%)
GRANULAR CELL TUMOR; BENIGN	1 (2%)		1 (2%)	
SARCOMA				1 (2%)

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**PA02: Neoplastic Lesion Summary with Percent Incidence****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Final****Date Report Requested:** 06/03/2024**Time Report Requested:** 10:59:31**Lab:** Battelle with EPL**Female: Core Animals**

	Treatment Groups (ppm)			
	0	50	100	200
REPRODUCTIVE SYSTEM				
CLITORAL GLAND	(49)	(50)	(50)	(49)
HISTIOCYTIC SARCOMA		1 (2%)		
SQUAMOUS CELL CARCINOMA	1 (2%)			1 (2%)
MAMMARY GLAND	(49)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC		1 (2%)		
ADENOCARCINOMA	5 (10%)	7 (14%)	11 (22%)	25 (50%)
ADENOMA	1 (2%)		5 (10%)	
FIBROADENOMA	28 (57%)	27 (54%)	28 (56%)	23 (46%)
OVARY	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC		2 (4%)		1 (2%)
ADENOMA	1 (2%)			
CARCINOMA; METASTATIC		1 (2%)		
GRANULOSA CELL TUMOR; MALIGNANT			1 (2%)	
LEIOMYOMA				1 (2%)
SQUAMOUS CELL CARCINOMA; METASTATIC				1 (2%)
UTERINE CERVIX	(50)	(50)	(50)	(50)
HISTIOCYTIC SARCOMA		1 (2%)		
LEIOMYOSARCOMA				1 (2%)
UTERUS	(50)	(49)	(50)	(49)
ADENOCARCINOMA	1 (2%)	7 (14%)	3 (6%)	4 (8%)
HEMANGIOMA			1 (2%)	
HEMANGIOSARCOMA			1 (2%)	
HISTIOCYTIC SARCOMA		1 (2%)		
POLYP; STROMAL	5 (10%)	2 (4%)	4 (8%)	8 (16%)
SQUAMOUS CELL CARCINOMA			1 (2%)	3 (6%)
VAGINA	(50)	(50)	(49)	(50)

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**PA02: Neoplastic Lesion Summary with Percent Incidence****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Final****Date Report Requested:** 06/03/2024**Time Report Requested:** 10:59:31**Lab:** Battelle with EPL

Female: Core Animals				
	Treatment Groups (ppm)			
	0	50	100	200
RESPIRATORY SYSTEM				
LARYNX	(50)	(50)	(50)	(50)
LUNG	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC	2 (4%)	2 (4%)	1 (2%)	7 (14%)
CARCINOMA; METASTATIC	1 (2%)	2 (4%)		
CYSTIC KERATINIZING EPITHELIOMA			1 (2%)	
HISTIOCYTIC SARCOMA		1 (2%)		
LEIOMYOMA				1 (2%)
LYMPHOMA; MALIGNANT	1 (2%)			
SQUAMOUS CELL CARCINOMA		1 (2%)		
NOSE	(50)	(50)	(50)	(50)
TRACHEA	(50)	(49)	(50)	(50)
SPECIAL SENSES SYSTEM				
EYE	(50)	(50)	(50)	(50)
IRIS; MELANOMA			1 (2%)	
HARDERIAN GLAND	(50)	(50)	(50)	(50)
LACRIMAL GLAND	(0)	(0)	(1)	(0)
ZYMBAL'S GLAND	(1)	(1)	(0)	(0)
CARCINOMA	1 (100%)	1 (100%)		
URINARY SYSTEM				
KIDNEY	(50)	(50)	(50)	(50)
ADENOCARCINOMA; METASTATIC		1 (2%)		
AMPHOPHILIC-VACUOLAR CARCINOMA	1 (2%)			1 (2%)
HISTIOCYTIC SARCOMA		1 (2%)		
URINARY BLADDER	(50)	(46)	(50)	(49)

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

PA02: Neoplastic Lesion Summary with Percent Incidence
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:59:31
Lab: Battelle with EPL

Female: Core Animals				
Treatment Groups (ppm)				
	0	50	100	200
SYSTEMIC LESIONS				
Multiple Organ(a)	(50)	(50)	(50)	(50)
HEMANGIOSARCOMA			1 (2%)	
HISTIOCYTIC SARCOMA		1 (2%)		
LYMPHOMA	1 (2%)			

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

PA02: Neoplastic Lesion Summary with Percent Incidence
Test Compound: alpha-Pinene
CAS Number: 80-56-8
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Date Report Requested: 06/03/2024
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Tumor Summary Data for Female Core Animals	Treatment Groups (ppm)			
	0	50	100	200
Total Animals with Primary Neoplasms	0	0	0	0
Total Primary Neoplasms	0	0	0	0
Total Animals with Benign Neoplasms	39	40	40	34
Total Benign Neoplasms	86	66	73	52
Total Animals with Malignant Neoplasms	16	18	20	30
Total Malignant Neoplasms	30	67	23	69
Total Animals with Metastatic Neoplasms	3	5	2	8
Total Metastatic Neoplasms	3	37	2	30
Total Animals with Malignant Neoplasms Uncertain Primary Site	0	0	0	0

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA02: Neoplastic Lesion Summary with Percent Incidence

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LEGEND

Censored animals are animals not in one of the other disposition categories that are removed prior to the end of the study. The censored animals are included in the pathology data if microscopic examination of tissues was performed.

Number of animals examined given for each tissue.

In the rows with the tissue names, the number of animals examined for each tissue is shown in parentheses.

(a) - Number of animals with any tissue examined microscopically. Systemic lesions are included once in the total lesion count regardless of how many times they occurred in a single animal.

**** END OF REPORT ****