

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

I05: Clinical Observations Summary
Test Compound: alpha-Pinene
CAS Number: 80-56-8

Date Report Requested: 03/08/2023
Time Report Requested: 15:43:36
Lab: Battelle

Study Number: C20302B-03
Study Sex: Both
PWG Approval Date: See web page for date of PWG Approval
Version: v1.4.3

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Lab: Battelle

Male: Fertility Males					
Phase	Observation	Treatment Groups (ppm)			
		0	100	200	400
SD	Discharge Eye; Brown	1 / 25 SD 71	0 / 25	0 / 25	0 / 25
SD	Discharge Eye; Left, Red	1 / 25 SD 90	0 / 25	0 / 25	0 / 25

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Lab: Battelle

Male: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Breathing, labored	3 / 50 SD 605	3 / 50 SD 427	3 / 50 SD 663	3 / 50 SD 602
SD	Breathing, rapid	0 / 50	0 / 50	0 / 50	2 / 50 SD 623
SD	Coat Ruffled	3 / 50 SD 141	4 / 50 SD 427	4 / 50 SD 544	3 / 50 SD 526
SD	Coat Unkempt	0 / 50	1 / 50 SD 572	0 / 50	0 / 50
SD	Cold To Touch	0 / 50	1 / 50 SD 607	2 / 50 SD 674	0 / 50
SD	Damaged Tail	3 / 50 SD 253	2 / 50 SD 537	5 / 50 SD 225	0 / 50
SD	Discharge Anus; Brown	0 / 50	1 / 50 SD 666	0 / 50	0 / 50
SD	Discharge Anus; Red	0 / 50	0 / 50	1 / 50 SD 656	0 / 50
SD	Discharge Eye; Bilateral, Brown	0 / 50	0 / 50	1 / 50 SD 655	0 / 50
SD	Discharge Eye; Bilateral, Red	2 / 50 SD 605	2 / 50 SD 648	2 / 50 SD 656	4 / 50 SD 482

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Male: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Discharge Eye; Brown	3 / 50 SD 449	1 / 50 SD 449	0 / 50	0 / 50
SD	Discharge Eye; Left	1 / 50 SD 670	0 / 50	0 / 50	0 / 50
SD	Discharge Eye; Left, Red	1 / 50 SD 617	0 / 50	1 / 50 SD 718	0 / 50
SD	Discharge Eye; Red	5 / 50 SD 449	12 / 50 SD 141	4 / 50 SD 560	7 / 50 SD 322
SD	Discharge Eye; Red, Right	0 / 50	0 / 50	0 / 50	1 / 50 SD 677
SD	Discharge Eye; Right	1 / 50 SD 683	0 / 50	0 / 50	0 / 50
SD	Discharge Nose/Snout; Bilateral, Red	0 / 50	0 / 50	1 / 50 SD 656	1 / 50 SD 482
SD	Discharge Nose/Snout; Brown	1 / 50 SD 637	1 / 50 SD 666	2 / 50 SD 661	1 / 50 SD 696
SD	Discharge Nose/Snout; Clear	0 / 50	0 / 50	1 / 50 SD 674	3 / 50 SD 85
SD	Discharge Nose/Snout; Red	3 / 50 SD 253	12 / 50 SD 225	1 / 50 SD 658	10 / 50 SD 342

Study Number: C20302B-03

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Lab: Battelle

Male: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Discharge Penis; Red	0 / 50	1 / 50 SD 421	1 / 50 SD 590	2 / 50 SD 696
SD	Discharge Penis; Yellow	0 / 50	0 / 50	1 / 50 SD 621	0 / 50
SD	Discharge Urogenital; Brown	0 / 50	1 / 50 SD 688	1 / 50 SD 683	0 / 50
SD	Discolored Fore Limb; Red	1 / 50 SD 533	0 / 50	0 / 50	0 / 50
SD	Eye Abnormality Bilateral	0 / 50	0 / 50	1 / 50 SD 600	0 / 50
SD	Eye Abnormality Left	1 / 50 SD 717	0 / 50	1 / 50 SD 365	0 / 50
SD	Eye Abnormality Right	2 / 50 SD 365	1 / 50 SD 393	1 / 50 SD 673	0 / 50
SD	Hunched	2 / 50 SD 617	0 / 50	3 / 50 SD 564	1 / 50 SD 531
SD	Hypoactivity	0 / 50	0 / 50	1 / 50 SD 590	0 / 50
SD	Lethargic	7 / 50 SD 567	10 / 50 SD 427	11 / 50 SD 544	9 / 50 SD 531

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Male: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Maloccluded/Broken Teeth	1 / 50 SD 683	1 / 50 SD 197	0 / 50	0 / 50
SD	Mass Abdomen; 1, Bilateral, Medium (6-15mm), Scabbed	0 / 50	0 / 50	1 / 50 SD 589	0 / 50
SD	Mass Abdomen; 1, Large (>15mm)	1 / 50 SD 645	1 / 50 SD 730	0 / 50	1 / 50 SD 731
SD	Mass Abdomen; 1, Large (>15mm), Left, Ulcerated	0 / 50	1 / 50 SD 730	0 / 50	0 / 50
SD	Mass Abdomen; 1, Large (>15mm), Right	1 / 50 SD 731	1 / 50 SD 731	0 / 50	1 / 50 SD 731
SD	Mass Abdomen; 1, Large (>15mm), Right, Scabbed	0 / 50	0 / 50	0 / 50	1 / 50 SD 712
SD	Mass Abdomen; 1, Left, Medium (6-15mm)	1 / 50 SD 589	1 / 50 SD 645	0 / 50	0 / 50
SD	Mass Abdomen; 1, Left, Small (1-5mm)	1 / 50 SD 589	0 / 50	1 / 50 SD 617	0 / 50
SD	Mass Abdomen; 1, Medium (6-15mm), Right	0 / 50	0 / 50	1 / 50 SD 673	1 / 50 SD 645

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Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

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Lab: Battelle

Male: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Abdomen; 1, Right	1 / 50 SD 617	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; 1, Right, Small (1-5mm)	1 / 50 SD 645	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; 2, Hairless, Left, Medium (6-15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 659
SD	Mass Abdomen; Bilateral	0 / 50	0 / 50	2 / 50 SD 479	0 / 50
SD	Mass Abdomen; Firm	0 / 50	0 / 50	0 / 50	1 / 50 SD 253
SD	Mass Abdomen; Left	3 / 50 SD 479	1 / 50 SD 479	0 / 50	0 / 50
SD	Mass Abdomen; Left, Moveable	1 / 50 SD 253	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; Right	1 / 50 SD 479	1 / 50 SD 421	1 / 50 SD 309	0 / 50
SD	Mass Abdomen; Scabbed	0 / 50	1 / 50 SD 309	0 / 50	0 / 50
SD	Mass Abdomen; Small (1-5mm)	0 / 50	0 / 50	0 / 50	2 / 50 SD 533

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Male: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Dorsum; 1, Bilateral, Small (1-5mm)	0 / 50	1 / 50 SD 731	0 / 50	0 / 50
SD	Mass Dorsum; 1, Medium (6-15mm), Right, Ulcerated	0 / 50	2 / 50 SD 686	0 / 50	0 / 50
SD	Mass Dorsum; 1, Scabbed, Small (1-5mm)	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Dorsum; Scabbed	0 / 50	1 / 50 SD 479	0 / 50	0 / 50
SD	Mass Ear; 1, Left, Small (1-5mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 731
SD	Mass Ear; 1, Medium (6-15mm), Right	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Ear; Right	0 / 50	1 / 50 SD 533	0 / 50	0 / 50
SD	Mass Fore Limb; 1, Large (>15mm), Left	1 / 50 SD 617	0 / 50	1 / 50 SD 718	0 / 50
SD	Mass Fore Limb; 1, Large (>15mm), Right	0 / 50	1 / 50 SD 617	0 / 50	0 / 50

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Test Type: TOX

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Species/Strain: Rat/Harlan Sprague Dawley

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Lab: Battelle

Male: Core Animals					
Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Fore Limb; 1, Large (>15mm), Right, Scabbed	1 / 50 SD 673	0 / 50	0 / 50	0 / 50
SD	Mass Fore Limb; 1, Right, Small (1-5mm)	1 / 50 SD 589	0 / 50	0 / 50	0 / 50
SD	Mass Fore Limb; Left	0 / 50	0 / 50	0 / 50	1 / 50 SD 323
SD	Mass Fore Limb; Right	1 / 50 SD 479	0 / 50	0 / 50	0 / 50
SD	Mass Fore Paw; 1, Left, Medium (6-15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 617
SD	Mass Head; 1, Bilateral, Large (>15mm)	0 / 50	0 / 50	1 / 50 SD 730	0 / 50
SD	Mass Head; 1, Left, Small (1-5mm)	0 / 50	1 / 50 SD 673	1 / 50 SD 701	1 / 50 SD 731
SD	Mass Head; 1, Right, Small (1-5mm)	0 / 50	0 / 50	1 / 50 SD 589	0 / 50
SD	Mass Head; 1, Right, Small (1-5mm), Ulcerated	1 / 50 SD 673	0 / 50	0 / 50	0 / 50
SD	Mass Head; 1, Scabbed, Small (1-5mm)	0 / 50	1 / 50 SD 648	0 / 50	0 / 50

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Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Head; Left	0 / 50	0 / 50	0 / 50	1 / 50 SD 526
SD	Mass Head; Right	0 / 50	0 / 50	1 / 50 SD 309	0 / 50
SD	Mass Head; Soft	1 / 50 SD 85	0 / 50	0 / 50	0 / 50
SD	Mass Hind Limb; 1, Firm, Large (>15mm), Left	0 / 50	1 / 50 SD 692	0 / 50	0 / 50
SD	Mass Hind Limb; 1, Large (>15mm), Left	0 / 50	0 / 50	0 / 50	1 / 50 SD 617
SD	Mass Hind Limb; 1, Large (>15mm), Left, Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 636
SD	Mass Hind Limb; 1, Left, Medium (6-15mm)	0 / 50	1 / 50 SD 673	0 / 50	0 / 50
SD	Mass Hind Limb; 1, Right, Small (1-5mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 645
SD	Mass Hind Limb; Large (>15mm), Right	0 / 50	0 / 50	1 / 50 SD 560	0 / 50

Male: Core Animals					
Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Hind Paw; 1, Firm, Left, Medium (6-15mm)	0 / 50	1 / 50 SD 673	0 / 50	0 / 50
SD	Mass Thorax; 1, Bilateral, Medium (6-15mm), Ulcerated	0 / 50	1 / 50 SD 701	0 / 50	0 / 50
SD	Mass Thorax; 1, Firm, Large (>15mm), Left	1 / 50 SD 673	0 / 50	0 / 50	0 / 50
SD	Mass Thorax; 1, Large (>15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 589
SD	Mass Thorax; 1, Large (>15mm), Left	1 / 50 SD 731	0 / 50	0 / 50	2 / 50 SD 731
SD	Mass Thorax; 1, Large (>15mm), Left, Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 617
SD	Mass Thorax; 1, Large (>15mm), Right	1 / 50 SD 617	0 / 50	0 / 50	0 / 50
SD	Mass Thorax; 1, Left, Medium (6-15mm), Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 589
SD	Mass Thorax; 1, Medium (6-15mm), Right	0 / 50	0 / 50	0 / 50	1 / 50 SD 716

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Lab: Battelle

Male: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Thorax; 1, Right, Small (1-5mm)	0 / 50	1 / 50 SD 655	0 / 50	0 / 50
SD	Mass Thorax; 1, Scabbed, Small (1-5mm)	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Thorax; Bilateral, Medium (6-15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 560
SD	Mass Thorax; Hairless, Large (>15mm)	0 / 50	1 / 50 SD 690	0 / 50	0 / 50
SD	Mass Thorax; Medium (6-15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 533
SD	Mass Thorax; Scabbed	0 / 50	1 / 50 SD 533	0 / 50	0 / 50
SD	Mass Thorax; Soft	1 / 50 SD 64	0 / 50	0 / 50	0 / 50
SD	Nails Broken Hind Paw; Left	1 / 50 SD 479	1 / 50 SD 253	1 / 50 SD 655	0 / 50
SD	Opacity Eye; Bilateral	0 / 50	0 / 50	1 / 50 SD 544	0 / 50
SD	Pale	0 / 50	0 / 50	0 / 50	3 / 50 SD 526

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Date Report Requested: 03/08/2023

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Lab: Battelle

Male: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Paralysis Hind Limb	0 / 50	0 / 50	0 / 50	1 / 50 SD 531
SD	Scab Abdomen; Left	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Scab Dorsum; Bilateral	0 / 50	0 / 50	0 / 50	1 / 50 SD 673
SD	Scab Head; Bilateral	1 / 50 SD 533	0 / 50	0 / 50	0 / 50
SD	Scab Neck	0 / 50	1 / 50 SD 141	0 / 50	0 / 50
SD	Scab Tail; Bilateral	0 / 50	1 / 50 SD 479	0 / 50	0 / 50
SD	Seizure	0 / 50	2 / 50 SD 337	0 / 50	0 / 50
SD	Sneezing	0 / 50	1 / 50 SD 645	0 / 50	0 / 50
SD	Sore Dorsum; Left	0 / 50	0 / 50	1 / 50 SD 731	0 / 50
SD	Sore Dorsum; Right	0 / 50	1 / 50 SD 731	0 / 50	0 / 50

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Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Sore Dorsum	0 / 50	0 / 50	1 / 50 SD 731	0 / 50
SD	Sore Head; Left	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Sore Tail; Bilateral	0 / 50	2 / 50 SD 589	0 / 50	0 / 50
SD	Stained Anus; Orange	0 / 50	0 / 50	0 / 50	1 / 50 SD 602
SD	Swelling Abdomen	0 / 50	0 / 50	0 / 50	1 / 50 SD 411
SD	Swelling Hind Limb; Bilateral	1 / 50 SD 567	0 / 50	0 / 50	0 / 50
SD	Swelling Hind Limb; Right	0 / 50	0 / 50	0 / 50	1 / 50 SD 393
SD	Swelling Hind Paw; Left	0 / 50	1 / 50 SD 692	0 / 50	0 / 50
SD	Swelling Nose/Snout; Bilateral	1 / 50 SD 614	1 / 50 SD 607	0 / 50	1 / 50 SD 617
SD	Thin	4 / 50 SD 141	7 / 50 SD 169	8 / 50 SD 544	8 / 50 SD 645

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Male: Core Animals					
Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Twitches Moderate	0 / 50	1 / 50 SD 722	0 / 50	0 / 50
SD	Weakness Hind Limb; Bilateral	0 / 50	1 / 50 SD 722	0 / 50	0 / 50
SD	Wound Abdomen; Bilateral	0 / 50	0 / 50	1 / 50 SD 449	0 / 50
SD	Wound Dorsum; Right	0 / 50	1 / 50 SD 671	0 / 50	0 / 50
SD	Wound Head	0 / 50	1 / 50 SD 22	0 / 50	0 / 50

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Lab: Battelle

Female: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Alopecia Fore Limb; Bilateral	1 / 50 SD 253	0 / 50	0 / 50	0 / 50
SD	Breathing, labored	0 / 50	0 / 50	2 / 50 SD 544	0 / 50
SD	Bruising Abdomen	0 / 50	0 / 50	0 / 50	1 / 50 SD 493
SD	Coat Ruffled	5 / 50 SD 429	2 / 50 SD 544	7 / 50 SD 422	6 / 50 SD 250
SD	Coat Soiled Anus; Bilateral	0 / 50	0 / 50	0 / 50	1 / 50 SD 607
SD	Coat Soiled Anus	0 / 50	0 / 50	1 / 50 SD 585	0 / 50
SD	Damaged Tail	0 / 50	0 / 50	0 / 50	1 / 50 SD 626
SD	Dehydrated	1 / 50 SD 429	0 / 50	0 / 50	0 / 50
SD	Digit Missing Hind Paw; Right	0 / 50	1 / 50 SD 281	0 / 50	0 / 50
SD	Dirty Anus	0 / 50	0 / 50	1 / 50 SD 589	0 / 50

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Lab: Battelle

Female: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Discharge Eye; Bilateral, Red	2 / 50 SD 617	0 / 50	3 / 50 SD 544	1 / 50 SD 667
SD	Discharge Eye; Left	0 / 50	0 / 50	1 / 50 SD 85	0 / 50
SD	Discharge Eye; Red	5 / 50 SD 505	3 / 50 SD 309	4 / 50 SD 281	6 / 50 SD 460
SD	Discharge Nose/Snout; Brown	1 / 50 SD 696	0 / 50	0 / 50	2 / 50 SD 493
SD	Discharge Nose/Snout; Red	5 / 50 SD 430	0 / 50	4 / 50 SD 253	3 / 50 SD 352
SD	Discharge Urogenital; Brown	0 / 50	1 / 50 SD 682	0 / 50	1 / 50 SD 667
SD	Discharge Urogenital; Red	1 / 50 SD 484	0 / 50	0 / 50	0 / 50
SD	Discharge Vagina; Brown	0 / 50	2 / 50 SD 479	3 / 50 SD 309	4 / 50 SD 479
SD	Discharge Vagina; Red	2 / 50 SD 421	12 / 50 SD 309	10 / 50 SD 365	13 / 50 SD 253
SD	Discharge Vagina; Yellow	0 / 50	1 / 50 SD 505	0 / 50	0 / 50

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Lab: Battelle

Female: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Discolored Nose/Snout; Red	1 / 50 SD 533	0 / 50	0 / 50	0 / 50
SD	Distended Abdomen	0 / 50	2 / 50 SD 442	0 / 50	0 / 50
SD	Eye Abnormality Right	0 / 50	0 / 50	1 / 50 SD 393	1 / 50 SD 225
SD	Feces Soft	0 / 50	0 / 50	0 / 50	1 / 50 SD 479
SD	Head Tilt	1 / 50 SD 619	1 / 50 SD 506	0 / 50	0 / 50
SD	Hunched	8 / 50 SD 429	4 / 50 SD 208	3 / 50 SD 281	2 / 50 SD 562
SD	Hypoactivity	0 / 50	0 / 50	0 / 50	2 / 50 SD 480
SD	Lethargic	6 / 50 SD 429	8 / 50 SD 442	6 / 50 SD 516	11 / 50 SD 383
SD	Limping Fore Paw; Severe	0 / 50	1 / 50 SD 208	0 / 50	0 / 50
SD	Maloccluded/Broken Teeth	1 / 50 SD 645	3 / 50 SD 589	2 / 50 SD 169	0 / 50

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Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Abdomen; 1, Bilateral, Large (>15mm)	3 / 50 SD 617	1 / 50 SD 732	1 / 50 SD 645	1 / 50 SD 589
SD	Mass Abdomen; 1, Bilateral, Small (1-5mm)	1 / 50 SD 645	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; 1, Firm, Large (>15mm), Right	0 / 50	0 / 50	0 / 50	1 / 50 SD 673
SD	Mass Abdomen; 1, Large (>15mm)	1 / 50 SD 645	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; 1, Large (>15mm), Left	6 / 50 SD 589	5 / 50 SD 617	3 / 50 SD 589	0 / 50
SD	Mass Abdomen; 1, Large (>15mm), Left, Scabbed	0 / 50	1 / 50 SD 675	0 / 50	0 / 50
SD	Mass Abdomen; 1, Large (>15mm), Right	5 / 50 SD 589	2 / 50 SD 673	7 / 50 SD 589	5 / 50 SD 589
SD	Mass Abdomen; 1, Large (>15mm), Right, Ulcerated	1 / 50 SD 619	1 / 50 SD 719	0 / 50	2 / 50 SD 593
SD	Mass Abdomen; 1, Left, Medium (6-15mm)	5 / 50 SD 589	4 / 50 SD 589	0 / 50	0 / 50

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Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Abdomen; 1, Left, Small (1-5mm)	2 / 50 SD 589	1 / 50 SD 589	1 / 50 SD 617	0 / 50
SD	Mass Abdomen; 1, Medium (6-15mm), Right	2 / 50 SD 589	2 / 50 SD 589	2 / 50 SD 617	1 / 50 SD 645
SD	Mass Abdomen; 1, Medium (6-15mm), Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 667
SD	Mass Abdomen; 1, Right, Small (1-5mm)	3 / 50 SD 589	1 / 50 SD 589	1 / 50 SD 589	0 / 50
SD	Mass Abdomen; 2, Bilateral, Large (>15mm)	0 / 50	1 / 50 SD 673	1 / 50 SD 673	1 / 50 SD 673
SD	Mass Abdomen; 2, Bilateral, Large (>15mm), Ulcerated	0 / 50	1 / 50 SD 698	0 / 50	0 / 50
SD	Mass Abdomen; 2, Bilateral, Medium (6-15mm)	2 / 50 SD 589	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; 2, Large (>15mm)	0 / 50	1 / 50 SD 667	0 / 50	0 / 50
SD	Mass Abdomen; 2, Large (>15mm), Right	1 / 50 SD 617	0 / 50	0 / 50	0 / 50

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

I05: Clinical Observations Summary

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Date Report Requested: 03/08/2023

Time Report Requested: 15:43:36

Lab: Battelle

Female: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Abdomen; 2, Large (>15mm), Ulcerated	1 / 50 SD 599	0 / 50	0 / 50	0 / 50
SD	Mass Abdomen; 3, Large (>15mm), Left	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Abdomen; Firm	0 / 50	0 / 50	2 / 50 SD 309	0 / 50
SD	Mass Abdomen; Left	7 / 50 SD 421	9 / 50 SD 393	4 / 50 SD 479	2 / 50 SD 253
SD	Mass Abdomen; Right	7 / 50 SD 421	6 / 50 SD 393	6 / 50 SD 309	9 / 50 SD 253
SD	Mass Abdomen; Soft	0 / 50	0 / 50	1 / 50 SD 309	4 / 50 SD 253
SD	Mass Abdomen; Ulcerated	0 / 50	0 / 50	1 / 50 SD 532	1 / 50 SD 436
SD	Mass Dorsum; Left	0 / 50	0 / 50	0 / 50	1 / 50 SD 250
SD	Mass Dorsum; Right	0 / 50	0 / 50	0 / 50	2 / 50 SD 197
SD	Mass Fore Limb; 1, Bilateral, Large (>15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 614

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Female: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Fore Limb; 1, Large (>15mm)	1 / 50 SD 617	0 / 50	0 / 50	0 / 50
SD	Mass Fore Limb; 1, Large (>15mm), Left	1 / 50 SD 732	1 / 50 SD 645	1 / 50 SD 589	0 / 50
SD	Mass Fore Limb; 1, Large (>15mm), Right	2 / 50 SD 731	0 / 50	2 / 50 SD 589	0 / 50
SD	Mass Fore Limb; 1, Large (>15mm), Right, Ulcerated	0 / 50	0 / 50	1 / 50 SD 702	0 / 50
SD	Mass Fore Limb; 1, Left, Medium (6-15mm)	4 / 50 SD 589	0 / 50	0 / 50	0 / 50
SD	Mass Fore Limb; 1, Left, Medium (6-15mm), Ulcerated	0 / 50	0 / 50	1 / 50 SD 617	0 / 50
SD	Mass Fore Limb; 1, Left, Small (1-5mm)	1 / 50 SD 617	0 / 50	0 / 50	0 / 50
SD	Mass Fore Limb; 1, Medium (6-15mm)	0 / 50	0 / 50	1 / 50 SD 572	0 / 50
SD	Mass Fore Limb; 1, Medium (6-15mm), Right	2 / 50 SD 589	1 / 50 SD 713	0 / 50	0 / 50

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Female: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Fore Limb; 1, Right, Small (1-5mm)	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Fore Limb; 1, Right, Small (1-5mm), Ulcerated	0 / 50	0 / 50	1 / 50 SD 673	0 / 50
SD	Mass Fore Limb; 2, Bilateral, Large (>15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 589
SD	Mass Fore Limb; 2, Large (>15mm), Right	0 / 50	0 / 50	1 / 50 SD 617	0 / 50
SD	Mass Fore Limb; Bilateral	0 / 50	1 / 50 SD 421	1 / 50 SD 533	1 / 50 SD 533
SD	Mass Fore Limb; Left	1 / 50 SD 533	0 / 50	3 / 50 SD 421	6 / 50 SD 281
SD	Mass Fore Limb; Right	2 / 50 SD 479	3 / 50 SD 365	5 / 50 SD 365	5 / 50 SD 281
SD	Mass Fore Paw; 1, Large (>15mm), Left	0 / 50	0 / 50	0 / 50	1 / 50 SD 617
SD	Mass Head; 1, Bilateral, Small (1-5mm), Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 673

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Female: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Head; 1, Large (>15mm), Right	0 / 50	1 / 50 SD 731	0 / 50	0 / 50
SD	Mass Head; 1, Medium (6-15mm), Right	0 / 50	1 / 50 SD 544	0 / 50	0 / 50
SD	Mass Head; 1, Right, Small (1-5mm)	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Head; 2, Bilateral, Large (>15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 731
SD	Mass Head; 4, Small (1-5mm)	1 / 50 SD 561	0 / 50	0 / 50	0 / 50
SD	Mass Head; Bilateral	0 / 50	0 / 50	1 / 50 SD 197	0 / 50
SD	Mass Head; Hairless, Right	1 / 50 SD 253	0 / 50	0 / 50	0 / 50
SD	Mass Head; Ulcerated	1 / 50 SD 562	0 / 50	0 / 50	0 / 50
SD	Mass Hind Limb; 1, Large (>15mm), Left	3 / 50 SD 589	2 / 50 SD 617	1 / 50 SD 645	2 / 50 SD 589
SD	Mass Hind Limb; 1, Large (>15mm), Right	1 / 50 SD 617	2 / 50 SD 617	1 / 50 SD 732	0 / 50

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

I05: Clinical Observations Summary

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Date Report Requested: 03/08/2023

Time Report Requested: 15:43:36

Lab: Battelle

Female: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Hind Limb; 1, Large (>15mm), Right, Scabbed	0 / 50	1 / 50 SD 675	0 / 50	0 / 50
SD	Mass Hind Limb; 1, Large (>15mm), Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 606
SD	Mass Hind Limb; 1, Left, Medium (6-15mm)	1 / 50 SD 617	1 / 50 SD 589	1 / 50 SD 645	0 / 50
SD	Mass Hind Limb; 2, Large (>15mm)	0 / 50	0 / 50	1 / 50 SD 572	0 / 50
SD	Mass Hind Limb; 2, Large (>15mm), Right	0 / 50	0 / 50	1 / 50 SD 617	0 / 50
SD	Mass Hind Limb; 2, Large (>15mm), Right, Ulcerated	0 / 50	0 / 50	1 / 50 SD 708	0 / 50
SD	Mass Hind Limb; 3, Bilateral, Large (>15mm)	0 / 50	0 / 50	0 / 50	1 / 50 SD 614
SD	Mass Hind Limb; Bilateral	0 / 50	0 / 50	1 / 50 SD 533	0 / 50
SD	Mass Hind Limb; Large (>15mm), Left	0 / 50	0 / 50	0 / 50	1 / 50 SD 701

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Female: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Hind Limb; Left	1 / 50 SD 533	1 / 50 SD 533	2 / 50 SD 365	0 / 50
SD	Mass Hind Limb; Right	0 / 50	0 / 50	3 / 50 SD 169	1 / 50 SD 479
SD	Mass Hind Limb	0 / 50	0 / 50	0 / 50	1 / 50 SD 337
SD	Mass Thorax; 1, Large (>15mm), Left	1 / 50 SD 589	1 / 50 SD 732	3 / 50 SD 731	3 / 50 SD 589
SD	Mass Thorax; 1, Large (>15mm), Left, Ulcerated	0 / 50	1 / 50 SD 617	0 / 50	1 / 50 SD 626
SD	Mass Thorax; 1, Large (>15mm), Right	1 / 50 SD 732	1 / 50 SD 732	0 / 50	2 / 50 SD 589
SD	Mass Thorax; 1, Large (>15mm), Right, Ulcerated	0 / 50	0 / 50	0 / 50	1 / 50 SD 674
SD	Mass Thorax; 1, Left, Small (1-5mm)	1 / 50 SD 732	0 / 50	0 / 50	0 / 50
SD	Mass Thorax; 1, Medium (6-15mm), Right	0 / 50	1 / 50 SD 732	1 / 50 SD 617	0 / 50

Study Number: C20302B-03**Test Type:** TOX**Route:** Whole-Body Inhalation**Species/Strain:** Rat/Harlan Sprague Dawley**I05: Clinical Observations Summary****Test Compound:** alpha-Pinene**CAS Number:** 80-56-8**Date Report Requested:** 03/08/2023**Time Report Requested:** 15:43:36**Lab:** Battelle**Female: Core Animals**

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Mass Thorax; 1, Right, Small (1-5mm)	0 / 50	1 / 50 SD 589	0 / 50	0 / 50
SD	Mass Thorax; 2, Bilateral, Large (>15mm)	1 / 50 SD 673	0 / 50	0 / 50	0 / 50
SD	Mass Thorax; 2, Bilateral, Medium (6-15mm)	1 / 50 SD 617	0 / 50	0 / 50	0 / 50
SD	Mass Thorax; 2, Large (>15mm), Right	0 / 50	0 / 50	2 / 50 SD 659	0 / 50
SD	Mass Thorax; 3, Bilateral, Large (>15mm)	1 / 50 SD 673	0 / 50	0 / 50	0 / 50
SD	Mass Thorax; Left	1 / 50 SD 421	0 / 50	2 / 50 SD 479	2 / 50 SD 479
SD	Mass Thorax; Right	0 / 50	1 / 50 SD 533	1 / 50 SD 528	2 / 50 SD 479
SD	Mass Thorax	0 / 50	1 / 50 SD 522	0 / 50	0 / 50
SD	Missing Fore Paw	0 / 50	0 / 50	0 / 50	1 / 50 SD 257
SD	Pale	3 / 50 SD 512	5 / 50 SD 522	11 / 50 SD 295	15 / 50 SD 383

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

I05: Clinical Observations Summary

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Date Report Requested: 03/08/2023

Time Report Requested: 15:43:36

Lab: Battelle

Female: Core Animals

Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Scab Face; Bilateral	1 / 50 SD 648	0 / 50	0 / 50	0 / 50
SD	Seizure	0 / 50	1 / 50 SD 505	0 / 50	0 / 50
SD	Sore Face; Bilateral	0 / 50	0 / 50	1 / 50 SD 673	0 / 50
SD	Stained Abdomen; Yellow	0 / 50	0 / 50	0 / 50	1 / 50 SD 460
SD	Swelling Hind Limb; Left	0 / 50	1 / 50 SD 732	0 / 50	0 / 50
SD	Swelling Hind Limb; Right	0 / 50	1 / 50 SD 612	0 / 50	0 / 50
SD	Swelling Nose/Snout; Bilateral	0 / 50	2 / 50 SD 533	0 / 50	0 / 50
SD	Thin	8 / 50 SD 429	10 / 50 SD 522	9 / 50 SD 169	14 / 50 SD 250
SD	Tremors Mild	0 / 50	0 / 50	0 / 50	1 / 50 SD 522
SD	Twitches Mild	0 / 50	0 / 50	0 / 50	1 / 50 SD 529

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

I05: Clinical Observations Summary
Test Compound: alpha-Pinene
CAS Number: 80-56-8

Date Report Requested: 03/08/2023
Time Report Requested: 15:43:36
Lab: Battelle

Female: Core Animals					
Phase	Observation	Treatment Groups (ppm)			
		0	50	100	200
SD	Wet Urogenital	0 / 50	1 / 50 SD 442	1 / 50 SD 601	0 / 50
SD	Wound Abdomen; Right	0 / 50	0 / 50	1 / 50 SD 479	0 / 50
SD	Wound Multiple Sites (>3); Bilateral	0 / 50	1 / 50 SD 309	0 / 50	0 / 50

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

I05: Clinical Observations Summary
Test Compound: alpha-Pinene
CAS Number: 80-56-8

Date Report Requested: 03/08/2023
Time Report Requested: 15:43:36
Lab: Battelle

Female: Naive Females					
Phase	Observation	Treatment Groups (ppm)			
		0	100	200	400
GD	Discharge	0 / 18	1 / 17	0 / 22	0 / 19
	Nose/Snout; Red		GD 14		
SD	Discharge	1 / 25	0 / 25	0 / 25	0 / 25
	Nose/Snout; Red	SD 29			

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

I05: Clinical Observations Summary

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Date Report Requested: 03/08/2023

Time Report Requested: 15:43:36

Lab: Battelle

LEGEND

Animals exhibiting clinical observations "within normal limits" were recorded as scheduled but are omitted from the table for clarity.

Upper row displays cumulative number of animals with observation / total animals started on study for SD days, total number of pregnant animals for GD days, or total number of littered females for LD days.

Lower row displays day of observation onset

SD – Study Day; GD – Gestation Day; LD – Lactation Day; PND – Postnatal Day, adults post-weaning

Naive females listed as SD were not pregnant.

**** END OF REPORT ****