Results of Toxicological Studies

Conducted for the American Petroleum Institute

HEALTH AND ENVIRONMENTAL SCIENCES DEPARTMENT
API PUBLICATION NUMBER 45592
JANUARY 1995

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PREFACE

This volume is a compilation of API toxicological studies performed on petroleum-based materials. The entries for the studies are organized by the category of test substances (gasoline and gasoline streams, middle distillates, lubes, heavy fuels, solvents, shale oils, miscellaneous products and oxygenates). Within each entry, information is included about the test performed, the species tested and the test results.

For some studies, an abstract number for the study is given, corresponding to the number appearing in the *Index and Abstracts to Reports and Other Publications of HESD* or the APILIT database. For other studies, a TR number or API Publication number is given. When ordering a report for a study referenced in this publication (see below), please furnish either the appropriate (1) abstract number , (2) the API publication number or (3) the TR number of the study. For those studies that are incomplete or the final report is not available at the time of publication, the phrase "Data on File" will appear.

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3 Carcinogenic Potential of Shales/Oils/Downstreams

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5 Analytical Support Program for Shale Studies

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SYN-7 Shale—Subchronic Dermal Toxicity

8 Acute Dermal/30-Day Skin Paint—Shale

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UNLEADED GASOLINE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-31048	2/85	28-Day Time Course Study: 0.5 to 2.0 g/kg, 5 d/wk x 4 wks, orally	rat (F344)	The sequence of renal lesions observed in male rats over the course of the study appeared as follows: occurrence of hyaline droplets in proximal tubule, increased foci of regenerative epithelium, and the presence of dilated tubules at the corticomedullary junction filled with granular material. No dose difference in severity of nephrosis among groups. see also Thomas, Halder, Holdsworth and Cockrell (1984) 33-31223	PS-53
36-31430	3/89	Absorption, Tissue Equilibria, and Excretion Routes of Inhaled Hydrocarbon Vapors and Their Metabolites	rat (F344)	Iso-octane excreted almost completely in urine with long half-life, octane eliminated to a large degree as CO2. Excretion of octane urinary metabolites more rapid than iso-octane.	PS-56
27-32130	7/80	Acute Dermal Toxicity	rabbit (NZW)	1/4 female dead at 5 ml/kg	PS-33
27-32130	7/80	Acute Oral Toxicity	rat (SD)	LD50 = 18.75 ml/kg (95% CI = 16.30 ml/kg to 21.60 ml/kg, male and female combined)	PS-33
36-31364	1/89	Chronic Dermal Carcinogenesis: 50 ul 2x/wk	mouse (C3H/HeJ)	Histopathology: 2 mice with tumors; FEN = 48; Mean Latency = 123 weeks Toluene Controls: 4 mice with tumors, FEN=43; Mean Latency = 111 weeks see also 33-31451 - 1/87 - PS-36	PS-36
33-31451	1/87	Chronic Dermal Carcinogenesis: 50 ul 2x/wk 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Locally dermatotoxic; no definitive chronic toxicity after 12 months of dosing.	PS-36

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Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-32165	9/83	Chronic Inhalation Toxicology/Carcinogenicity: 67, 292, and 2056 ppm, 6 hr/day, 5 d/wk, 2 yrs.	rat (F344) mouse (B6C3F1)	Body weight depressed at high dose. Kidney weights of male rats elevated. Histopathology of kidneys showed the following tumors in male rats: control - 0; 67 ppm - 1 carcinoma, 1 leukemic infiltrate; 292 ppm - 2 adenomas, 2 carcinomas & 1 sarcoma; 2056 ppm - 6 carcinomas & 1 adenoma. There was a sarcoma in the kidneys of 1 mid-dose female rat and liver tumors in high-dose female mice. Also see: 30-31991 (McFarland Paper) 32-32227 (McFarland et al.) 30-32845 (Westpath report - Kidney Effects of Unleaded Gasoline) - 9/83 - PS-6	PS-6
32-32227	9/83	Chronic Inhalation Toxicology/Carcinogenicity (McFarland et al.)	rat (F344 mouse (B6C3F1)	see 32-32165	PS-6
30-31991	9/83	Chronic Inhalation Toxicology/Carcinogenicity (McFarland Paper)	N/A	see 32-32165	PS-6
30-32845	9/83	Chronic Inhalation Toxicology/Carcinogenicity (Westpath report - Kidney Effects of Unleaded Gasoline)	N/A	see 32-32165	PS-6
27-32130	7/80	Dermal Sensitization (0.5 ml neat; mineral oil, 50% solution for trial and challenge)	guinea pig	Nonsensitizing	PS-33
28-30173	3/77	Mutagenesis: Ames Assay	Salmonella typhimurium	Negative	PS-4
28-31344	4/80	Mutagenesis: Dominant Lethal Assay 400 and 1600 ppm via inhalation 6 hr/d, 5 d/wk, 8 wks.	mouse	Negative	PS-39

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Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
34-33108	9/87	Mutagenesis: in vitro mouse Lymphoma 220-280°F boiling cut	mouse	Negative with and without metabolic (S9) activation.	PS-61
34-33107	9/87	Mutagenesis: in vitro mouse Lymphoma 2,2,4-Trimethylpentane	mouse	Negative with and without metabolic (S9) activation.	PS-61
34-33109	9/87	Mutagenesis: in vitro mouse Lymphoma 2,3-Dimethylbutane	mouse	Negative with and without metabolic (S9) activation.	PS-61
28-30173	3/77	Mutagenesis: in vitro mouse Lymphoma Assay	mouse	Negative	PS-4
35-31365	12/87	Mutagenesis: in vitro mouse Lymphoma n-Octane	mouse	Negative with and without metabolic (S9) activation.	PS-61
35-32431	4/88	Mutagenesis: in vitro Unscheduled DNA Synthesis - rat hepatocytes DMSO extract of gasoline	rat	1:5 Extract - negative	PS-61
35-32431	4/88	Mutagenesis: in vitro Unscheduled DNA Synthesis - rat hepatocytes Evaporative residue of gasoline	rat	30:1 Concentrate - positive	PS-61
35-32431	4/88	Mutagenesis: in vitro Unscheduled DNA Synthesis - rat hepatocytes Gasoline	rat	Negative	PS-61
28-30173	3/77	Mutagenesis: in vivo Bone Marrow Cytogenetics Assay acute = 0.03 ml/rat, 0.1 ml/rat, 0.3 ml/rat i.p., 1 exposure	rat	Negative	PS-4

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UNLEADED GASOLINE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
26-60099	11/77	Mutagenesis in vivo Bone Marrow Cytogenetics: Subchronic = 0.003 ml/rat, 0.04 ml/rat, 0.13 ml/rat, i.p., 5 exposures, 24 hr apart	rat	Negative	
30-30225	10/82	Neurotoxicity: (animals from chronic study, 2056 ppm, 6 hr/day, 5 day/week, up to 18 mo.)	rat (F344)	Analysis of spinal cords for neurotoxicity showed possible adverse effects. The small number of animals examined meant that results were not definitive.	PS-29
Publ 4592	1/94	Odor Threshold Studies on gasoline blends and gasoline oxygenate mixtures	human	Odor detection and recognition thresholds of gasoline blends and gasoline oxygenate mixtures in air were (expressed in ppm):	N/A

	Odor Detection	Odor Recognition
Summer blend	0.578	0.802
Winter Blend	0.479	1.121
Composite blend	0.474	0.765
Summ. blend + 15%MTBE	0. 264	0.686
Wint. blend + 15% MTBE	0. 219	0.398
Comp. blend + 15 % MTBE	0.085	0.185
Summ. blend + 15% TAME	0.114	0.207
Summ. blend + 15% ETBE	0.064	0.139

32-32749	12/84	Percutaneous Absorption: 2,2,4-Trimethylpentane 0.04-0.05 ml subQ dose	monkey	Technical difficulty in administration; sample leaked out onto skin after administration. Urinary excretion detected for at least 3 weeks; could not restrain animals for this long.	PS-32
32-32749	12/84	Percutaneous Absorption: 2,2,4-Trimethylpentane, i.v. dose	monkey	38-49% of dose excreted in urine.	PS-32
32-32749	12/84	Percutaneous Absorption: 2,2,4-Trimethylpentane Topical exposure (250 ul to 50 cm2)	monkey	Urinary excretion of 0.010±0.006% of dose.	PS-32

UNLEADED GASOLINE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
27-32130	7/80	Primary Dermal Irritation	rabbit (NZW)	Slightly irritating (Score 0.98)	PS-33
TR 409	12/20/94	Primary Dermal Irritation in rabbits following a 4 hr dermal application	rabbit (NZW)	91-01(PII) PS-6(PII) occluded 4.8 4.8 semi-occluded 4.3 3.7 (all moderate irritants)	
27-32130	7/80	Primary Eye Irritation	rabbit (NZW)	Nonirritating (rinsed and unrinsed eyes scored 0 at 24, 48 and 72 hrs)	PS-33
34-33036	9/87	Pulmonary Absorption: % of inhaled hydrocarbon retained	rat (F344)	% Uptake propylene 8.7a 2-butyne 12.9a cis-2-butene 13.3 n-butane 7.2 iso-butane 5.4 n-pentane 19.0 iso-pentane 8.6 neopentane 5.4 benzene 57.1 methylcylopentane 30.8 n-hexane 34.2 iso-hexane 24.7 n-heptane 22.8 2,3-dimethylpentane 22.7 n-octane 36.7 2,3,4-trimethylpentane 28.9 2,2,3,3-tetramethylbutane 19.7 1,2,4-trimethylbenzene 66.8 n-nonane 38.2 a= means of all data obtained between 10 and 100 ppm for exposure times 50-70 minutes.	PS-56
27-32130	7/80	Subchronic Dermal Toxicity: 24 hrs/d, 5 d/wk, 2 wks	rabbit (NZW)	0% mortality at 2.5 ml/kg, 5.0 ml/kg and 8.0 ml/kg (emaciated, weight reduced at 8 ml/kg; slight systemic toxicity) Severe dermal reactions, histologically	PS-33

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UNLEADED GASOLINE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-32405	2/85	Subchronic Inhalation: 0-145°F Gasoline Distillation Fraction 1000 and 4500 ppm, 6 hr/d, 5 d/wk, 13 wks	rat (F344)	No treatment-related effects in the monitored parameters (i.e., clinical observations, body weights, necropsy and organ weights) were reported for the 4- and 13-week sacrifice.	PS-53
32-31472	10/84	Subchronic Inhalation: 50:50 mixtures of iso-butane:iso-pentane and n-butane:n-pentane 1000 and 4500 ppm, 6 hr/d, 5 d/wk, 13 wks	rat (F344)	Liver and kidney weights of rats sacrificed at either 4 or 13 weeks were unaffected by the exposure. All observed gross lesions were considered to be spontaneous and unrelated to the exposures. No evidence of HC nephropathy in male or female rats of any group. N-butane:n-pentane produced statistically significant reduction in BW by week 3 and 4 in both sexes. Males recovered by end of exposure period.	PS-53
27-32610	4/76	Subchronic Inhalation Toxicity: 1.57 mg/l (384 ppm); 6.35 mg/l (1552 ppm); 6 hr/d, 5 d/wk, 3 mos. (90 days)	rat (SD)	Slight increase in platelet count and male liver weight at high dose. Lab report and publication - same number	PS-6
27-32610	4/76	Subchronic Inhalation Toxicity: 1.57 mg/l (384 ppm); 6.35 mg/l (1552 ppm); 6 hr/d, 5 d/wk, 3 mos. (90 days)	monkey	Small increase in respiratory rate. Lab report and publication - same number	PS-6
33-31097	3/86	Subchronic Oral Nephrotoxicity Screen - C8/C10: 2.0 g/kg, 5 d/wk for 4 wks.	rat (F344)	Positive- (Nephropathy score of slight to severe) 2,2,4,4-Tetramethyloctane 2,2,3-Trimethyloctane 2,2,4,4-Tetramethyldecane PS-6 fuel Negative- (no effect rating) 2,3-Dimethyloctane 2-Methyldecane Decane 3-Methyloctane Octane 2,2,3-Trimethyldecane 2,3-Dimethyldecane 2,2,4,4,5,5,7,7-Octamethyloctane	PS-53

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Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-30966	2/85	Subchronic Studies: Oral 0.5 & 2.0 g/kg, 5 d/wk x 4 wks; gasoline, 16 component chemicals, refinery streams from PS-6 and distillation cuts from PS-6 gasoline	rat (F344)	• Negative-(HC Nephropathy) Methylcyclopentane Pentane 2-Methyl-2-pentene m-Xylene 2-Methylbutane 1,2,4-Trimethylbenzene Toluene 2-Methylhexane Trans-2-Pentene Light Catalytically Reformed Naphtha API Gas Fraction 280°F+ Heavy Catalytically Cracked Naphtha n-Hexane • Positive-(HC Nephropathy) API Gas Fraction 220-280°F Light Alkylate Naphtha 2,2,4-Trimethylpentane 2,3-Dimethylpentane 2,2,5-Trimethylhexane API PS-6 Fuel API Gas Fraction 145-220°F 2,3-Dimethylbutane Light Catalytically Cracked Naphtha 2-Methylpentane (questionable)	PS-53
26-60014	8/78	Teratogenesis: 400 & 1600 ppm via inhalation days 6-15 of gestation	rat (SD)	Negative	PS-15

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10% BOTTOMS FROM UNLEADED GASOLINE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
30-31646	5/83	Chronic Dermal Carcinogenesis: 0.05 ml 3x/wk for 2 yrs (15.6 ml total dose/mouse)	mouse (Swiss)	Significant skin irritation. No significant carcinogenicity. 10% survival to 2 years.	PS-36

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LEADED GASOLINE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
27-32610	4/76	Subchronic Inhalation Toxicity: 0.42 mg/1 (103 ppm = 0.19 ug Pb/1), 1.53 mg/1 (373 ppm = 0.72 ug Pb/1); 6 hr/day 5 days/wk, 3 mos (90 days)	rat	Urinary Pb excretion and tissue Pb levels increased. Slight increase in male liver weights at high dose. Increased platelet count. Subtle but exposure-related microscopic changes on reexamination of high-dose male rat kidneys. Lab report and publication - same number	PS-6
27-32610	4/76	Subchronic Inhalation Toxicity: 0.42 mg/1 (103 ppm = 0.19 ug Pb/1), 1.53 mg/1 (373 ppm = 0.72 ug Pb/1); 6 hr/day, 5 days/wk, 3 mos (90 days)	monkey	Data inconclusive, but no adverse renal changes on reexamination. Lab report and publication - same number	PS-6

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LIGHT CATALYTICALLY CRACKED NAPHTHA

Sample 81-03

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
30-31988	8/82	Acute Dermal Toxicity	rabbit (NZW)	No deaths at 2.0 g/kg.	PS-45
33-31902	10/82	Acute Inhalation Toxicity LC50	rat (SD)	No deaths at 5.2 mg/L; Females exhibited nasal discharge only during exposure.	PS-45
30-31988	8/82	Acute LD50	rat (SD)	No deaths at 5.0 g/kg (signs: hypoactivity, diarrhea, ataxia)	PS-45
33-31451	1/86	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H)	No definitive chronic toxicity after 12 months of dosing. See 36-31364 - 1/89 - PS-36	PS-36
36-31364	1/89	Chronic Dermal Carcinogenesis: 50 ul 2x/wk	mouse (C3H/HeJ)	At histopathological examination: 7 mice with tumors, Mean Latency - 118 weeks; FEN=47 Untreated Control: 0 tumors Toluene Control: 4 mice with tumors, FEN=43; Mean Latency - 111 weeks 12-Month Toxicity Evaluation see 33-31451 - 1/86 - PS-36	PS-36
31-31412	3/84	Dermal Sensitization: 50 % v/v paraffin oil - sensitization 1% v/v paraffin oil - challenge	guinea pig	Nonsensitizing	PS-45
32-31300	3/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Negative	PS-4
36-30045	10/88	Mutagenesis: in vitro SCE in CHO cells	CHO cells	Negative without S9. Equivocal with S9.	PS-12
32-31300	3/85	Mutagenesis: in vivo Bone Marrow Cytogenetics (Inhalation at 63, 297 & 2046 ppm for 6 hr/d x 5d)	rat (SD)	Negative	PS-4

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Sample 81-03

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
36-30044	9/88	Mutagenesis: in vivo SCE 200, 1200, 2400 mg/kg (single ip injection)	mouse (B6C3F1)	Positive	PS-12
30-31988	8/82	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 1.7	PS-45
30-31988	8/82	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index, Average) 1 hr. 4.0 2.0 24 hrs. 1.0 0.7	PS-45
34-33173	11/87	Subchronic Inhalation Study: 6 hrs/day, 5d/wk at 1500 ppm, 2600 ppm and 4500 ppm	rat (SD)	Decrease in weight gain for males at 2610 and 4540 ppm. Increased absolute or relative liver and kidney weights at 1510 ppm (males) and 2610 and 4540 ppm (both sexes). Centrilobular hepatocellular hypertrophy in males and females exposed to 4540 ppm. Evidence of light hydrocarbon nephropathy in males at 4540 ppm.	PS-45
32-30966	2/85	Subchronic Toxicity: 0.5 or 2.0 g/kg, 5 d/wk x 4 wks via gavage	rat (F344)	See unleaded gasoline (Subchronic study)	PS-53

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LIGHT CATALYTICALLY CRACKED NAPHTHA

Sample 81-04

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-30747	2/86	28-Day Dermal: 200, 1000, & 2000 mg/kg x 3/wk, 12 applications	rabbit (NZW)	Dermal results: erythema; edema; atonicity; and dry, flaking skin 200 mg/kg - moderate irritant 1000 mg/kg - severe irritant 2000 mg/kg - severe irritant Proliferative and inflammatory changes in skin. Increased granulopoiesis of bone marrow, believed stress-related. Statistically significant mean BW reduction in high-dose male and mid- and high-dose female.	PS-45
32-31708	2/85	Acute Dermal LD50	rabbit (NZW)	Greater than 2.0 g/kg	PS-45
31-30680	2/84	Acute Inhalation Toxicity: LC50 5.0 mg/l for 4 hours	rat (SD)	No deaths at 5.25 mg/L (no significant toxic signs)	PS-45
32-31708	2/85	Acute Oral Toxicity LD50	rat (SD)	Greater than 5.0 g/kg	PS-45
33-30495	12/85	Dermal Sensitization: 75% v/v in paraffin oil - sensitization 25% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
32-31710	2/86	Mutagenesis: in vitro mouse Lymphoma	mouse	Negative without activation on repeat. Equivocal with activation on repeat.	PS-4
32-32288	4/85	Mutagenesis: in vivo Bone Marrow Cytogenetics (3.0, 1, 0.3 gm/kg, i.p. single dose)	rat (SD)	Negative	PS-4
32-30966	2/85	Nephropathy Screen	rat (F344)	See Unleaded Gasoline (Subchronic studies)	PS-53
32-31708	2/85	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 4.0	PS-45

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LIGHT CATALYTICALLY CRACKED NAPHTHA

Sample 81-04

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results			Project Number
32-31708	2/85	Primary Eye Irritation	rabbit (NZW)		Unwashed	Washed (Irritation Index)	PS-45
				1 hr	4.3	6.0	
				24 hr	0.3	0.0	

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LIGHT CATALYTICALLY CRACKED NAPHTHA

Sample 83-20

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-32722	8/86	Acute Dermal Toxicity LD50	rabbit (NZW)	Greater than 3.0 g/kg	PS-45
34-32777	1/87	Acute LC50	rat (SD)	No deaths at 5.3 mg/L for 4 hours; languid behavior and squinted eyes during exposure.	PS-45
33-32722	8/86	Acute Oral Toxicity LD50	rabbit (NZW)	Greater than 5.0 g/kg	PS-45
33-32722	8/86	Dermal Sensitization: Undiluted - sensitization; 25% v/v in paraffin oil - challenge	guinea pig	Nonsensitizing	PS-45
34-30633	1/87	Mutagenesis: in vitro mouse Lymphoma 50-400 nl/ml	mouse	Negative over a wide range of toxicities.	PS-4
33-32722	8/86	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 3.7	PS-45
33-32722	8/86	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 1.0 3.3 24 hr 0.0 0.0	PS-45

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SWEETENED NAPHTHA

Sample 81-08

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
30-31990	8/82	Acute Dermal Toxicity	rabbit (NZW)	No deaths at 2 g/kg	PS-45
33-31827	10/82	Acute LC50: 5.2 mg/l, inhalation of vapor for 4 hours	rat (SD)	No deaths at 5.2 mg/L for 4 hrs. Signs: nasal discharge during exposure; reduced weight gain in females.	PS-45
30-31990	8/82	Acute LD50	rat (SD)	Greater than 5.0 g/kg (Signs: diarrhea)	PS-45
33-31451	1/86	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	see 36-31364 - 1/89 - PS-36	PS-36
36-31364	1/89	Chronic Dermal Carcinogenesis: 50 ul 2x/wk	mouse (C3H/HeJ)	At histopathological examination: 3 animals with tumors, FEN=46; Mean Latency = 113 weeks Toluene Controls: 4 mice with tumors; FEN=43; Mean Latency = 111 weeks 12-Month Toxicity Evaluation see 33-31451 - 1/86 - PS-36	PS-36
36-32643	7/89	Dermal Bioassay: Short-Term (Initiation/Promotion)	mouse (CD-1)	No promotional or initiator activity.	PS-62
31-31351	3/84	Dermal Sensitization: 50% v/v paraffin oil - sensitization 25% v/v paraffin oil - challenge	guinea pig	Nonsensitizing	PS-45
32-31233	2/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Negative, with and without metabolic activation.	PS-4
33-31093	3/86	Mutagenesis: in vivo Bone Marrow Cytogenetics Inhalation exposures of 69, 293, 2012 ppm, 6 hr/day, 5 days	rat (SD)	Negative	PS-4

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SWEETENED NAPHTHA

Sample 81-08

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
30-31990	8/82	Primary Dermal Irritation: (0.5 ml/area)	rabbit (NZW)	Irritation Index = 1.2 (slightly irritating)	PS-45
30-31990	8/82	Primary Eye Irritation: (0.1 ml)	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 2.0 0.7 24 hr 0.3 0.0	PS-45
32-30966	2/85	Subchronic Toxicity: 0.5 or 2.0 g/kg, 5 d/wk x 4 wk via gavage	rat (F344)	See Unleaded Gasoline (Subchronic Studies)	PS-53

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LIGHT CATALYTICALLY REFORMED NAPHTHA

Sample 83-04

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-30597	2/86	28-Day Dermal: dose levels = 200, 2000 mg/kg, 3x/wk, 4 weeks	rabbit (NZW)	Dermal results: erythema; edema; atonicity; and dry, flaking skin. Statistically significant lower body weight gains at 2000 mg/kg with slight to moderate proliferative and inflammatory changes in treated skin. 200 mg/kg - moderate irritant 1000 mg/kg - severe irritant 2000 mg/kg - severe irritant	PS-45
32-31473	2/85	Acute Dermal LD50	rabbit (NZW)	Greater than 2.0 g/kg body weight	PS-45
31-30613	2/84	Acute Inhalation LC50	rat (SD)	No deaths at 5.05 mg/l for 4 hrs.	PS-45
32-31473	2/85	Acute Oral LD50	rat (SD)	Greater than 5.0 g/kg body weight	PS-45
33-30496	12/85	Dermal Sensitization 75% v/v in paraffin oil - sensitization 25% v/v in paraffin oil - challenge	guinea pig	Nonsensitizing (closed patch technique)	PS-45
32-32168	6/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Negative with and without metabolic activation.	PS-4
33-31092	3/86	Mutagenesis: in vivo Bone Marrow Cytogenetics (single i.p. inj. 0.25, 0.83 and 2.5 g/kg)	rat (SD)	Negative	PS-4
32-31473	2/85	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 2.0 (slight to moderate irritation)	PS-45
32-31473	2/85	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 8.0 6.0 24 hr 2.8 1.3	PS-45
32-30966	2/85	Subchronic Toxicity: 0.5 or 2.0 g/kg, 5 d/wk x 4 wks	rat (F344)	See Unleaded Gasoline (Subchronic studies)	PS-53

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FULL RANGE CATALYTICALLY REFORMED NAPHTHA

Sample 83-05

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-30598	2/86	28-Day Dermal: 3 dose levels -- 200, 1000 & 2000 mg/kg, 3x/wk, 4 wks	rabbit (NZW)	Dermal findings: erythema; atonicity; and cracked, flaking skin. 200 mg/kg - moderate irritant 1000 mg/kg - moderate irritant 2000 mg/kg - severe irritant Inflammatory changes in skin. Upon rereading of slides by EPL, two high-dose deaths were considered not to be treatment related and the renal tubule degeneration found was NOT hydrocarbon-induced nephropathy. Statistically significant reduced BW in high-dose males and females. Increased granulopoiesis of bone marrow, thought to be stress related.	PS-45
32-31474	12/85	Acute Dermal LD50	rabbit (NZW)	>2.0 g/kg body weight	PS-45
31-30681	2/84	Acute LC50: 5.22 mg/L in vapor, 4 hours	rat (SD)	No deaths at 5.22 mg/L for 4 hrs.	PS-45
32-31474	12/85	Acute Oral LD50	rat (SD)	Male - 6.62 g/kg (95% CI= 6.2-7.08 g/kg) Female - 5.39 g/kg (95% CI= 4.23-6.86 g/kg)	PS-45
33-30497	12/85	Dermal Sensitization: 50% v/v in paraffin oil - sensitization 25% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
32-32459	6/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Positive with metabolic activation; negative w/o metabolic activation.	PS-4
32-32289	5/85	Mutagenesis: in vivo Bone Marrow Cytogenetics 0.25, 0.83, 2.5 g/kg, single ip dose	rat (SD)	Negative	PS-4
32-31474	12/85	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 3.1 (moderate irritation)	PS-45

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FULL RANGE CATALYTICALLY REFORMED NAPHTHA

Sample 83-05

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results			Project Number
32-31474	12/85	Primary Eye Irritation	rabbit (NZW)		Unwashed	Washed (Irritation Index)	PS-45
				1 hr	7.2	7.3	
				24 hr	5.5	2.7	

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HEAVY CATALYTICALLY REFORMED NAPHTHA

Sample 83-06

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-32752	10/85	28-Day Dermal Toxicity: (200, 1000, 2000 mg/kg, 3x/wk for 4 wks)	rabbit (NZW)	2000 mg/kg severe irritation, inflammation 1000 mg/kg severe irritation 200 mg/kg moderate irritation	PS-45
32-32860	11/85	Acute Dermal LD50	rabbit (NZW)	>6.0 g/kg	PS-45
32-32169	6/85	Acute Inhalation Toxicity LC50	rat (SD)	No deaths at 5.04 mg/L for 4 hrs.	PS-45
32-32860	11/85	Acute Oral LD50	rat (SD)	4.82 g/kg (M); 5.80 g/kg (F) 95% CI = 4.06-5.71 g/kg (M); 4.71-7.15 g/kg (F)	PS-45
34-32865	4/87	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Locally dermatotoxic; no definitive chronic toxicity after 12 months of dosing. See 36-33220 - 6/89 - PS-36	PS-36
36-33220	6/89	Chronic Dermal Carcinogenesis: 50 ul, 2x/wk	mouse (C3H/HeJ)	Histopathology: 0/50 mice with benign tumors. Toluene Control: 0/50 mice with benign tumors. 12-Month Toxicity Evaluation see 34-32865 - 4/87 - PS-36	PS-36
32-32860	11/85	Dermal Sensitization: 50% v/v in paraffin oil - sensitization 25% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
32-32460	6/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Lab 1 -- Negative without activation. Positive with activation.	PS-4
33-31641	5/86	Mutagenesis: in vitro mouse Lymphoma	mouse	Lab 2 -- Equivocal with and without activation.	PS-4
33-30494	5/85	Mutagenesis: in vivo Bone Marrow Cytogenetics (0.3, 1.0, 3.0 g/kg, single ip injection)	rat (SD)	Negative	PS-4

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HEAVY CATALYTICALLY REFORMED NAPHTHA

Sample 83-06

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-30966	2/85	Nephropathy Screen	rat (F344)	See Unleaded Gasoline (Subchronic studies)	PS-53
32-32860	11/85	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 5.4	PS-45
32-32860	11/85	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 4.3 4.7 24 hr 0.7 1.3	PS-45

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HEAVY CATALYTICALLY CRACKED NAPHTHA

Sample 83-18

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-32748	11/85	28-Day Dermal Toxicity: (200, 1000, 2000 mg/kg, 3x/wk for 4 weeks)	rabbit (NZW)	2000 mg/kg moderate irritant 1000 mg/kg moderate irritant 200 mg/kg slight to moderate irritant, males; slight, females.	PS-45
33-30593	1/86	Acute Dermal LD50	rabbit (NZW)	>2.0 g/kg	PS-45
34-32776	7/87	Acute Inhalation Toxicity LC50	rat (SD)	No deaths at 5.74 mg/L for 4 hours.	PS-45
33-30593	1/86	Acute Oral LD50	rat (SD)	>5.0 g/kg	PS-45
34-32865	4/87	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Locally dermatotoxic; no definitive chronic toxicity after 12 months of dosing. See 36-33220 - 6/89 - PS-36	PS-36
36-33220	6/89	Chronic Dermal Carcinogenesis: 50 ul, 2x/wk	mouse (C3H/HeJ)	Histopathology: 6 mice with tumors; FEN = 46; Mean Latency = 72 Toluene Control: 0 mice with tumors 12-Month Toxicity Evaluation see 34-32865 - 4/87 - PS-36	PS-36
33-30593	1/86	Dermal Sensitization: 75% v/v in paraffin oil - sensitization 25% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
33-32804	9/86	Mutagenesis: in vitro mouse Lymphoma	mouse	Positive with and without metabolic activation.	PS-4
32-30966	2/85	Nephropathy Screen	rat (F344)	See Unleaded Gasoline (Subchronic studies)	PS-53
33-30593	1/86	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 6.9	PS-45
33-30593	1/86	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 3.7 2.7 24 hr 0.0 0.0	PS-45

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LIGHT ALKYLATE NAPHTHA

Sample 83-19

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-30498	1/86	28-Day Dermal Toxicity: 200, 1000, and 2000 mg/kg, 3x/wk for 4 wk	rabbit (NZW)	2000 mg/kg - moderate irritation 1000 mg/kg - moderate irritation 200 mg/kg - minimal irritation Significantly lower body weights (M&F) at high dose	PS-45
33-30594	1/86	Acute Dermal LD50	rabbit (NZW)	>2.0 g/kg	PS-45
34-30636	1/87	Acute Inhalation Toxicity	rat (SD)	>5.0 mg/L for 4 hours exposure	PS-45
33-30594	1/86	Acute Oral LD50	rat (SD)	>7.0 g/kg	PS-45
34-32865	4/87	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Locally dermatotoxic; no definitive chronic toxicity seen after 12 months of dosing (1 papilloma noted). See 36-33220 - 6/89 - PS-36	PS-36
36-33220	6/89	Chronic Dermal Carcinogenesis: 50 ul, 2x/wk	mouse (C3H/HeJ)	Histopathology: 1 mouse with tumor; FEN = 46; Mean Latency = 104 Toluene Control: 0 mice with tumors. 12-Month Toxicity Evaluation see 34-32865 - 4/87 - PS-36	PS-36
33-30594	1/86	Dermal Sensitization: 50% v/v in paraffin oil - sensitization 25% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
32-32746	7/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Negative in the presence and absence of metabolic activation.	PS-4
32-32409	5/85	Mutagenesis: in vivo Bone Marrow Cytogenetics Assay 3.0, 1.0, and 0.3 g/kg, i.p. injection	rat (SD)	Negative	PS-4
32-30966	2/85	Nephropathy Screen	rat (F344)	See Unleaded Gasoline (Subchronic studies)	PS-53
33-30594	1/86	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 3.9	PS-45
33-30594	1/86	Primary Eye Irritation: (score at 24 hrs)	rabbit (NZW)	Irritation Index: Unwashed 0.0 Washed 0.0	PS-45

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HEAVY THERMALLY CRACKED NAPHTHA

Sample 84-02

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-31696	5/86	28-Day Dermal: 200, 1000, 2000 mg/kg 3x/wk for 4 wks	rabbit (NZW)	2000 mg/kg - moderate irritant 1000 mg/kg - moderate irritant 200 mg/kg - slight irritant Significant decrease in male and female body weights at high dose. Proliferative changes and slight to moderately severe inflammation in treated skin of the male and female high dose.	PS-45
33-30596	1/86	Acute Dermal Toxicity	rabbit (NZW)	>2.0 g/kg	PS-45
34-32778	7/87	Acute Inhalation Toxicity	rat (SD)	No deaths at 5.24 mg/L, 4-hour exposure. Languid behavior, squinted eyes, respiratory distress, salivation at different post-exposure periods.	PS-45
33-30596	1/86	Acute Oral Toxicity	rat (SD)	>5.0 g/kg	PS-45
34-32865	4/87	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Locally dermatotoxic; no definitive chronic toxicity noted after 12 months of dosing. See 36-33220 - 6/89 - PS-36	PS-36
36-33220	6/89	Chronic Dermal Carcinogenesis: 50 ul 2x weekly	mouse (C3H/HeJ)	Histopathology: 6 mice with tumors; FEN = 45; Mean Latency = 88 Toluene Control: 0 mice with tumors 12-Month Toxicity Evaluation see 34-32865 - 4/87 - PS-36	PS-36
33-30596	1/86	Dermal Sensitization: 25% v/v in paraffin oil - sensitization 1% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
34-30632	1/87	Mutagenesis: in vitro mouse Lymphoma	mouse	Positive with and without metabolic activation in a wide range of toxicities.	PS-4
33-30596	1/86	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 4.9	PS-45
33-30596	1/86	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 3.0 2.7 24 hr 0.0 0.0	PS-45

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JET FUEL A

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
27-32815	9/80	Acute Dermal Toxicity	rabbit (NZW)	0% mortality at 5 ml/kg	PS-33
27-32815	9/80	Acute Oral LD50	rat (SD)	>25 ml/kg	PS-33
27-32815	9/80	Dermal Sensitization: 0.5 ml, neat, both sensitization and challenge doses	guinea pig	Nonsensitizing	PS-33
27-30051	8/79	Mutagenesis: Ames Assay	Salmonella typhimurium	Negative	PS-39
27-30051	8/79	Mutagenesis: in vitro mouse Lymphoma Assay	mouse	Positive	PS-39
27-30051	8/79	Mutagenesis: in vivo Bone Marrow Cytogenetics Assay Inhalation of 100 ppm, 6 hr/day, 5 day/wk, 19 days or 400 ppm, 6 hr/day, 5 days	rat	Original study was "Positive," but findings from this study are considered suspect on the basis of technical errors found in subsequent studies.	PS-39
28-31345	12/80	Mutagenesis: in vivo Dominant Lethal Assay 100/400 ppm, 6 hr/day, 5 day/wk, 8 wks	mouse	Negative	PS-39
30-31037	5/82	Mutagenic Evaluation: in vivo/in vitro Urine Assay	rat	Negative	PS-50
27-32815	9/80	Primary Dermal Irritation	rabbit (NZW)	Mildly irritating (Draize scale)	PS-33
27-32815	9/80	Primary Eye Irritation	rabbit (NZW)	Mildly irritating (Draize scale)	PS-33

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JET FUEL A

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
27-32815	9/80	Subchronic Dermal: 8 ml/kg, 5 days/week for 2 weeks	rabbit (NZW)	Acute dermal corrosion; dermal and hepatic toxicity; hyperplastic changes in urinary bladder epithelium not corroborated by 2 independent pathologists.	PS-33
27-32173	5/79	Teratogenesis: 0, 100, & 400 ppm days 6-15 of gestation (inhalation)	rat (SD)	Negative	

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DIESEL FUEL

API 79-6

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
27-32817	9/80	Acute Dermal Toxicity	rabbit (NZW)	0% mortality at 5 ml/kg	PS-33
27-32817	9/80	Acute Oral LD50	rat (SD)	9.0 ml/kg (95% CI = 5.58-14.51 ml/kg)	PS-33
30-31646	5/83	Chronic Dermal Carcinogenesis: 0.05 ml 3x/wk; sacrificed after 62 weeks	mouse (Swiss)	Extreme skin irritation. No significant carcinogenesis.	PS-36
27-32817	9/80	Dermal Sensitization: 0.5 ml dose - sensitization 0.5 ml dose - challenge	guinea pig	Nonsensitizing	PS-33
26-60102	2/78	Mutagenesis: Ames Assay	Salmonella typhimurium	Negative	PS-4
26-60102	2/78	Mutagenesis: in vitro mouse Lymphoma Assay	mouse	Negative	PS-4
26-60102	2/78	Mutagenesis: in vivo Bone Marrow Cytogenetics Assay 0.6 ml/kg, 2.0 ml/kg, 6.0 ml/kg i.p.; acute = 1 exposure; subchronic = 5 exposures, 24 hr apart	rat	Positive: clastogenic at 2.0 ml/kg and 6.0 ml/kg.	PS-4
28-31346	2/81	Mutagenesis: in vivo Dominant Lethal Assay 100 ppm/400 ppm, 6 hr/day, 5 days/wk, 8 wks (inhalation)	mouse	Negative	PS-39
27-32817	9/80	Primary Dermal Irritation	rabbit (NZW)	Extremely irritating (Draize scale)	PS-33
27-32817	9/80	Primary Eye Irritation	rabbit (NZW)	Nonirritating (Draize scale)	PS-33

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DIESEL FUEL

API 79-6

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
27-32817	9/80	Subchronic Dermal Toxicity: 24 hrs/day, 5 days/wk, 2 wks	rabbit (NZW)	0% mortality at 4 ml/kg 67% mortality at 8 ml/kg	PS-33
27-32174	3/79	Teratogenesis: 100 & 400 ppm via inhalation days 6-15 of gestation	rat (SD)	Negative (significant decrease in food consumption of dams in 400-ppm exposure group).	

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KEROSENE/DEODORIZED KEROSENE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
26-60089	6/75	Acute Inhalation Toxicity (Deodorized Kerosene): Air at 25°C substantially saturated with vapors 0.10 mg/l (14 ppm) for 8 hrs	rat/dog/cat	No mortality, no signs of discomfort.	
26-60089	6/75	Human Sensory Response (Deodorized Kerosene): Odor Threshold	human	Approximately 0.0006 mg/l (0.09 ppm)	
26-60089	6/75	Human Sensory Response (Deodorized Kerosene): Vapor saturated air at 25°C, 0.14 mg/l (20 ppm)	human	No eye, nose, or throat irritation reported.	
26-60103	1978	Mutagenesis: Ames Assay (Deoderized Kerosene)	Salmonella typhimurium	Negative	PS-4
26-60017	3/77	Mutagenesis: Ames Assay (Kerosene)	Salmonella typhimurium	Negative	PS-4
26-60098	1973	Mutagenesis: Dominant Lethal Assay (Deodorized Kerosene) 1.0 mg/kg of a 10% dilution in corn oil, subQ	mouse	Negative	
26-60098	1973	Mutagenesis: Dominant Lethal Assay (Deodorized Kerosene) 1.0 mg/kg, i.p.	rat	Negative	
26-60017	3/77	Mutagenesis: in vitro mouse Lymphoma Assay (Kerosene)	mouse	Negative	PS-4

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KEROSENE/DEODORIZED KEROSENE

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
26-60017	3/77	Mutagenesis: in vivo Bone Marrow Cytogenetics Assay (Kerosene) Acute - 0.04 ml/rat, 0.13 ml/rat, or 0.40 ml/rat via a single i.p. injection	rat	Negative	PS-4
26-60017	3/77	Mutagenesis: in vivo Bone Marrow Cytogenetics Assay (Kerosene) Subchronic 0.02 ml/rat, 0.06 ml/rat, or 0.18 ml/rat; 5 i.p. administrations 24 hrs apart (doses <0.05 ml were given as 0.1 ml of dilutions in acetone)	rat	Negative	PS-4
26-60089	6/75	Subchronic Inhalation Toxicity (Deodorized Kerosene): 7.5 mg/l (as aerosol) 6 hr/day, 4 days	rat/cat	Skin irritation of extremities. Slight loss of coordination. Cats not affected at 6.5 mg/l after 6 hours in similarly generated aerosol.	
26-60089	6/75	Subchronic Inhalation Toxicity (Deodorized Kerosene): Air at 25°C substantially saturated with vapors 6 hr/day, 5 days/wk, 13 wks, 0.10 mg/l (14 ppm)	rat	No statistically significant deviations from control groups.	
27-32175	3/79	Teratogenesis (Kerosene): 100 and 365 ppm via inhalation days 6-15 of gestation	rat (SD)	Negative	

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HYDRODESULFURIZED KEROSENE

Sample 81-07

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
30-32297	4/83	28-Day Dermal Toxicity: 200, 1000, 2000 mg/kg/d, 3x/wk, 4 wks	rabbit (NZW)	High dose: severe irritant Mid dose: moderate irritant Low dose: moderate irritant [One death (high-dose male) and several sacrifices (1 low-dose male, 2 mid-dose males, 1 mid-dose female, 3 high-dose males, and 3 high-dose females) due to severe dermal reactions]	PS-45
30-31986	8/82	Acute Dermal Toxicity	rabbit (NZW)	No deaths at 2.0 g/kg.	PS-45
30-32855	10/83	Acute Inhalation Toxicity LC50	rat (SD)	No deaths at 5.2 mg/L for 4 hrs (Signs: dyspnea).	PS-45
30-31986	8/82	Acute Oral LD50	rat (SD)	Greater than 5.0 g/kg for males and females (Signs: hypoactivity, excess salivation, diarrhea, urine-stained abdomen, hair loss around anal area.)	PS-45
33-31451	1/86	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H)	Considered a skin carcinogen after 12 months of dosing (1/10 squamous cell carcinoma—female). See 36-31364 - 1/89 - PS-36	PS-36
36-31364	1/89	Chronic Dermal Carcinogenesis: 50 ul 2x/wk	mouse (C3H/HeJ)	Histopathology: 24 mice with tumors, all mice dead. FEN = 41; Mean Latency = 76 Toluene Controls: 4 mice with tumors, FEN=43; Mean Latency = 111 weeks. 12-Month Toxicity Evaluation see 33-31451 - 1/86 - PS-36	PS-36
36-32643	7/89	Dermal Bioassay: Short-Term (Initiation/Promotion)	mouse (CD-1)	Promotional activity but not initiator.	PS-62
31-31413	3/84	Dermal Sensitization: 50% v/v in paraffin oil - sensitization 10% v/v paraffin oil - challenge	guinea pig	Nonsensitizing	PS-45
Data on File	N/A	Irritation and epidermal hyperplasia in human skin-grafted to athymic nude mice	Athymic mouse/human	Data on File	Middle Distillates

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HYDRODESULFURIZED KEROSENE

Sample 81-07

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
Data on File	N/A	Irritation and epidermal hyperplasia in mouse skin	CD-1	Data on File	Middle Distillates
32-30240	11/84	Mutagenesis: in vitro mouse Lymphoma	mouse	Negative	PS-4
35-32482	4/88	Mutagenesis: in vitro SCE in CHO cells	hamster	Positive with and negative without S9 activation.	PS-12
32-30240	11/84	Mutagenesis: in vivo Bone Marrow Cytogenetics 3, 1, 0.3 gm/kg single i.p. inj	rat (SD)	Negative	PS-4
36-30043	10/88	Mutagenesis: in vivo SCE 4000, 2000, 400 mg/kg i.p.	mouse	Positive	PS-12
30-31986	8/82	Primary Dermal Irritation: (0.5-ml dose)	rabbit (NZW)	Irritation Index = 4.4 (Signs: blanching, subcutaneous hemorrhage, fissuring at application site.)	PS-45
30-31986	8/82	Primary Eye Irritation	rabbit (NZW)	Unwashed Washed (Irritation Index) 1 hr 3.0 2.7 24 hr 0.3 0.7	PS-45
33-32724	8/86	Subchronic 4-Week Inhalation Toxicity: 6 hrs/day, 5d/wk for 4 wks at 24 mg/m3	rat (SD)	No significant treatment-related effects were observed. (Parameters evaluated included body weight, clinical chemistry/hematology, and histopathology)	PS-45

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MINERAL SEAL OIL B.P. 490-610 deg F

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
Data on File	N/A	Irritation and Epidermal Hyperplasia in Human Skin Grafted to Athymic Nude Mice	athymic mouse/ human	Data on File	Middle Distillates
Data on File	N/A	Irritation and Epidermal Hyperplasia in Mouse Skin	mouse (CD-1)	Data on File	Middle Distillates

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ODORLESS LIGHT PETROLEUM HYDROCARBON

(Meets FDA Specification 21CFR, Section 172.884)

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
Data on file	N/A	Irritation and Epidermal Hyperplasia in Human Skin Grafted to Athymic Nude Mice	athymic mouse/ human	Data on file	Middle Distillates
Data on File	N/A	Irritation and Epidermal Hyperplasia in Mouse Skin	mouse (CD-1)	Data on File	Middle Distillates

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LIGHT VACUUM DISTILLATE (severely hydrotreated)

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
Data on File	N/A	Irritation and Epidermal Hyperplasia in Human Shin Grafted to Athymic Nude Mice	athymic mouse/ human	Data on File	Middle Distillates
Data on File	N/A	Irritation and Epidermal Hyperplasia in Mouse Skin	mouse (CD-1)	Data on File	Middle Distillates

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STRAIGHT RUN KEROSENE

Sample 83-09

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
33-30443	11/85	28-Day Dermal Toxicity: (200, 1000, 2000 mg/kg, 3x/wk, 4 wks)	rabbit (NZW)	2000 mg/kg - moderate irritant 1000 mg/kg - moderate irritant 200 mg/kg - minimal to slight irritant Significantly lower body weights (M&F) and 2 treatment-related deaths at high dose. Increased spleen weight (relative and absolute) in low- and mid-dose females.	PS-45
32-32858	11/85	Acute Dermal LD50	rabbit (NZW)	>2.0 g/kg	PS-45
34-30634	1/87	Acute Inhalation LC50	rat (SD)	No deaths at >5 mg/L for a 4-hour exposure.	PS-45
32-32858	11/85	Acute Oral LD50	rat (SD)	>5.0 g/kg	PS-45
34-32865	4/87	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Dermal neoplasm noted after 12 months of dosing (1 squamous cell carcinoma—female). See 36-33220 - 6/89 - PS-36	PS-36
36-33220	6/89	Chronic Dermal Carcinogenesis: 50 ul, 2x/wk	mouse (C3H/HeJ)	Histopathology: 30 mice with tumors; FEN = 45; Mean Latency = 77 Toluene Control: 0 mice with tumors. 12-Month Toxicity Evaluation see 34-32865 - 4/87 - PS-36	PS-36
32-32858	11/85	Dermal Sensitization: 75% v/v in paraffin oil - sensitization 10% v/v in paraffin oil - challenge	guinea pig	Not a sensitizer (closed patch technique)	PS-45
32-32745	10/85	Mutagenesis: in vitro mouse Lymphoma	mouse	Equivocal with and positive without activation.	PS-4
32-31769	5/85	Mutagenesis: in vivo Bone Marrow Cytogenetics (0.3, 1.0, 3.0 g/kg, single i.p. dose)	rat (SD)	Negative	PS-4
32-32858	11/85	Primary Dermal Irritation	rabbit (NZW)	Irritation Index = 5.5	PS-45

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STRAIGHT RUN KEROSENE

Sample 83-09

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results			Project Number
32-32858	11/85	Primary Eye Irritation (Score at 24 hrs)	rabbit (NZW)		Unwashed	Washed (Irritation Index)	PS-45
				1 hr	0.7	2.0	
				24 hr	0.0	0.0	

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LIGHT CATALYTICALLY CRACKED DISTILLATE

Sample 83-07

Report Abstract Number	Date of Report	Test Performed	Species Tested	Test Results	Project Number
32-32751	10/85	28-Day Dermal Toxicity: (doses as indicated, 3x/wk, 4 wks)	rabbit (NZW)	1000 mg/kg - severe irritation 500 mg/kg - severe (male) irritation 500 mg/kg - moderate (female) irritation 250 mg/kg - moderate irritation No treatment-related clinical signs. Mean body weight gains in 500 and 1000 mg/kg males noted to be lower than controls; no definite conclusions drawn.	PS-45
33-30162	11/85	Acute Dermal LD50	rabbit (NZW)	>2.0 g/kg	PS-45
33-30549	12/85	Acute Inhalation LC50: (1.56-8.13 mg/L, 4 hours)	rat (SD)	LC50 = 5.4 mg/L combined (3.35 mg/l for males; female data inadequate to calculate LC50 for females alone).	PS-45
33-30162	11/85	Acute Oral LD50	rat (SD)	4.66 g/kg (M) 3.2 g/kg (F)	PS-45
34-32865	4/87	Chronic Dermal Carcinogenesis: 12-Month Toxicity Evaluation	mouse (C3H/HeJ)	Dermal neoplasms noted (males—3/10 squamous cell carcinomas, 2/10 papillomas; females—2/10 squamous cell carcinomas, 1/10 fibrosarcoma, 5/10 papillomas); prominent increases in liver weights and liver-to-body weight ratios. See also 36-33220 - 6/89	PS-36
36-33220	6/89	Chronic Dermal Carcinogenesis: 50 ul, 2x/wk	mouse (C3H/HeJ)	Histopathology: 39 mice with tumors; FEN = 45; Mean Latency = 40 Toluene Control: 0 mice with tumors 12-Month Toxicity Evaluation see 34-32865 - 4/87 - PS-36	PS-36
36-32643	7/89	Dermal Bioassay: Short-Term (Initiation/Promotion)	mouse (CD-1)	Promotion activity, possible initiator.	PS-62
33-30162	11/85	Dermal Sensitization: (undiluted - sensitization; 10% v/v in paraffin oil - challenge)	guinea pig	Not a sensitizer (closed patch technique)	PS-45

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