

**Company**

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# Slop Oil

<b>HMIS</b>	<p><b>IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product.</b></p> <p>This product is covered by the OSHA Hazard Communication Standard and this document has been prepared in accord with the MSDS requirements of the rule.</p>	<b>Protective Equipment</b>
Health Hazard *2		
Fire Hazard 3		
Reactivity 0		
* = Chronic Health Hazard		

### SECTION 1: IDENTIFICATION

<b>Trade Name</b>	Slop Oil	<b>MSDS No.</b>	AP1170
<b>Product Number</b>	008002060*	<b>Revision Date</b>	11/01/06
<b>CAS Number</b>	Mixture		
<b>Synonyms</b>	Reclaimed Petroleum Waste Oil; Off-test Refinery Streams Slop.		
<b>Generic Name</b>	Petroleum Slop	<b>Business Contact</b>	Product Safety 800-700-0946
<b>Chemical Family</b>	Petroleum Hydrocarbons and Water	<b>24 Hour Emergency Contact</b>	CHEMTREC 800-424-9300 CANUTEC-Canada 613-996-6666 LYONDELL 800-245-4532

### SECTION 2: COMPOSITION

Component Name	CAS Number	Carcinogenic Listings	Concentration Wt%
SLOP OILS, MIXED WHICH CONTAINS	Mixture	Not applicable	EQ 100
SLOP OIL, C20+ HYDROCARBONS	68476-53-9	Not applicable	67 to 97
SLOP OIL, C7 - C10 HYDROCARBONS	68956-48-9	Not applicable	1 to 5
SLOP OIL, C5 - C12 HYDROCARBONS	68956-70-7	Not applicable	1 to 5
4-6 FUSED-RING POLYNUCLEAR AROMATIC HYDROCARBONS (PNA'S)	68487-58-6	IARC,NTP,OSHA,ACGIH	1 to 20
XYLENE (TOTAL OF ALL ISOMERS)	1330-20-7	Not applicable	1 to 2
ETHYL BENZENE	100-41-4	IARC (Group 2B),ACGIH	0.2 to 0.5
NAPHTHALENE	91-20-3	IARC (Group 2B)	0.1 to 0.5
BENZENE	71-43-2	IARC,NTP,OSHA,ACGIH	0.01 to 0.5
HYDROGEN SULFIDE	7783-06-4	Not applicable	LT 0.1 to 0.25
WATER	7732-18-5	Not applicable	0.1 to 1

### SECTION 3: HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

<b>Signal Word</b>	<b>DANGER!</b>	<b>Color</b>	Dark yellow to brown or greenish-black.
<b>Physical State</b>	Viscous liquid.	<b>Odor</b>	Faint, pleasant hydrocarbon to pungent, offensive sulfurous. Odor threshold is 0.1 to 0.5 ppm in air.
<b>Physical and Health Hazards</b>	<p><b>Extremely to moderately flammable liquid! Vapor may cause flash fire or explosion! May release toxic Hydrogen Sulfide vapors, especially when heated and/or agitated! May cause eye, skin, mucous membrane, and respiratory tract irritation or dermal sensitization! May be harmful or fatal if inhaled, ingested, or absorbed through the skin! Aspiration into the lungs will cause pulmonary edema and lipid pneumonia! Overexposures may cause central nervous system (CNS) depression and/or damage the lungs, liver, and kidneys! Potential skin cancer hazard! Contains low levels of Benzene, a known human leukemogen, which can cause blood abnormalities. Contains low levels of Ethylbenzene, a suspect human carcinogen, based upon animal studies. Potential slipping hazard on smooth, hard walking area. If heated, may react violently with water.</b></p>		

**Environmental Hazards** Emission of vapors into the atmosphere occurs everywhere along the production, collection, handling, and marketing distribution chain, beginning at the oil field, continuing through bulk storage and handling, transport, and unloading operations at the petroleum refinery. Vapors released into the ambient air are subject to processes of transport, dilution, and dispersion, which reduce their concentrations, but spread them over wide areas.

Toxic Aromatic Hydrocarbon compounds (Benzene, Xylenes, etc.) from petroleum are both volatile and water soluble; and therefore, they are commonly found in contaminated groundwater and the vapor phase above it. Petroleum oils spilled on oceans and waterways annually causes significant loss of aquatic and avian animal populations.

### POTENTIAL HEALTH EFFECTS

**Routes of Exposure** Inhalation; Eye Contact; Skin Contact; and Skin Absorption.

#### Signs and Symptoms of Acute Exposure

- *Inhalation* Breathing mist or vapors may irritate the mucous membranes of the nose, throat, bronchi, and lungs, and may cause transient central nervous system (CNS) depression, depending on the concentration and/or duration of exposure. CNS symptoms include headache, dizziness, nausea, intoxication, blurred vision, slurred speech, flushed face, confusion, weakness, fatigue, loss of consciousness, convulsions, coma, and death.  
  
Toxic hydrogen sulfide vapors may be released from petroleum oils. This gas is irritating to the respiratory tract at concentrations above 5 ppm and can cause systemic toxicity and rapid death due to respiratory paralysis from exposures exceeding 500 ppm.
- *Eye Contact* Mild to moderate eye irritation may result from short-term contact with liquid, mist, and/or vapor. Hydrogen Sulfide vapors can cause eye irritation which may lead to light (photo-) sensitivity and eye damage.
- *Skin Contact* Minimal to mild skin irritation may result from short-term contact with liquid or mist. Absorption from massive or prolonged liquid contact may cause poisoning. Repeated skin contact may also cause allergic reactions in highly-sensitive individuals and has been shown to increase toxicity of other skin sensitizing agents.
- *Ingestion* Ingestion is highly unlikely; however, if swallowed, this product may cause irritation to the mouth, throat, and stomach and/or gastrointestinal disturbances. Retention may produce nausea, vomiting, diarrhea, restlessness, sedation, and inadequate respiratory and/or cardiac function. Aspiration into the lungs, which is likely to occur during the swallowing or vomiting, will cause pneumonia.

#### Chronic Health Effects Summary

Prolonged and/or repeated contact may cause skin defatting, oil acne, redness, itching, dryness, blistering, lesions, scaly dermatitis, and possibly, secondary infection. The presence of various heavy metals in crude petroleum oils may also pose a bioaccumulation potential which could lead to systemic toxicity by repeated or prolonged inhalation, ingestion, or skin absorption.

The International Agency for Research on Cancer (IARC) has concluded that for Crude Petroleum Oils there is limited evidence of carcinogenicity in experimental animals and inadequate evidence for assessing its carcinogenicity in humans. However, rodent studies have shown that the Heavy Naphtha, Distillate, and higher-boiling fractions of some Crude Petroleum Oils have produced skin tumors and/or target organ damage following prolonged and repeated application. Usually, these tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Crude Petroleum Oils also contain Polynuclear Aromatic Hydrocarbons (PAHs or PNAs), some of which have been reported to cause skin cancer on humans under conditions of poor personal hygiene, prolonged/repeated contact, and exposure to sunlight. Toxic effects are unlikely to occur if good personal hygiene is practiced.

Chronic effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction. Chronic occupational xylene exposures have caused auditory nerve degeneration.

At high exposure concentrations, **ethylbenzene** has been associated with multiple organ tumors in laboratory animals.

Based upon animal testing, the **C8 aromatic hydrocarbon components (xylene isomers and ethylbenzene)** might be assumed to cause embryo and fetal toxicity, spontaneous abortions, and/or decreased fetal and newborn weights if overexposures occur during a woman's early gestation period.

**Naphthalene** is considered to be a toxic substance as defined by both human exposure and laboratory testing results. And, based upon animal testing, it might be considered carcinogenic. (See Section 11.)

<b>Conditions Aggravated by Exposure</b>	Personnel with pre-existing CNS disease, skin disorders, impaired liver or kidney function, or chronic respiratory diseases should avoid exposure.
<b>Target Organs</b>	Eyes, skin, mucous membranes, lungs, nervous system, liver, kidneys, thymus, spleen, blood and bone marrow, lymph nodes, and reproductive organs.
<b>Carcinogenic Potential</b>	Please refer to Sections 2 and/or 11 for the identification of components, if any, which have been identified as having carcinogenic potential in animals and/or humans.

#### SECTION 4: FIRST AID MEASURES

*Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to the Emergency Overview in Section 3 and Exposure Controls in Section 8 of this MSDS -*

<b>Inhalation</b>	If vapors are still suspected to be present, the rescuer must wear an appropriate supplied-air respirator or self-contained breathing apparatus (SCBA). Evacuate the victim to a safe area as soon as possible. If the victim is breathing, check for unusual breath odors. Loosen tight clothing such as a collar, tie, belt, or waistband. If breathing is difficult, administer air or oxygen. If the victim is not breathing, perform cardiopulmonary resuscitation (CPR), as necessary. Maintain an open airway. <b>WARNING:</b> Persons providing mouth-to-mouth resuscitation may be placing themselves at risk either from toxic materials or communicable disease.
<b>Eye Contact</b>	<b>IMMEDIATELY</b> flush the eye(s) with large volumes of clean, low-pressure water for at least 15 minutes, occasionally lifting both the upper and lower eyelids. If pain or redness persists after flushing, obtain medical attention.
<b>Skin Contact</b>	Remove contaminated clothing as soon as possible. Wash affected skin thoroughly with mild soap and water. If irritation persists or if tissue appears damaged, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated leather shoes and gloves.
<b>Ingestion</b>	<b>DO NOT INDUCE VOMITING!</b> Risk of damage to the lungs generally exceeds the poisoning risk. (See "Ingestion" in Section 3.) If the patient is completely conscious and alert, give one to two pints of lukewarm water or milk. Obtain medical attention <b>IMMEDIATELY</b> .
<b>Notes to Physician</b>	Aspiration of this material into the lungs will cause lipid or chemical pneumonia. As a result, induction of emesis is <b>NOT</b> recommended. Administer an aqueous slurry of activated charcoal followed by a cathartic such as Magnesium Citrate or Sorbitol. For quantities above a few drops, use careful gastric lavage with a tight-fitting, cuffed endotracheal tube for complete emptying. Treat symptomatically.

#### SECTION 5: FIRE FIGHTING MEASURES

##### FLAMMABLE PROPERTIES

<b>Flammability Classification</b>	Extremely Flammable! OSHA/NFPA Class-IB Flammable Liquid.
<b>Flash Point/Method</b>	LT 40°F (4°C) by ASTM D-56.
<b>Flammable Limits %</b>	<b>LEL:</b> AP 0.9% <b>UEL:</b> AP 7.0%      (Based on NFPA "Crude Petroleum")
<b>Auto-Ignition Temperature</b>	AP 500°F (260°C) (Based on NFPA "Hydrogen Sulfide")
<b>Hazardous Combustion Products</b>	Burning or excessive heating may produce smoke, carbon monoxide, carbon dioxide, aldehydes, and other harmful gases/vapors including oxides and/or other compounds of heavy metals, nitrogen, sulfur, and possibly, hydrogen sulfide and alkyl mercaptans. Hydrogen sulfide is corrosive to many materials when moisture is present.
<b>Special Properties</b>	<p>Evolved Hydrogen Sulfide vapor may cause a flash fire or explosion! Keep away from all ignition sources! This vapor may be released at well below ambient temperatures and readily forms flammable mixtures with air. Exposed to an ignition source, it will burn in the open or explode in confined spaces. Being heavier than air, its flammable vapors may travel long distances along the ground before reaching a point of ignition and flashing back.</p> <p>When heated above its flash point temperature, this material will release flammable vapors which if exposed to an ignition source can burn in the open or be explosive in confined spaces. Mists or sprays may be flammable at temperatures below the flash point.</p> <p>A static electrical charge may accumulate as a result of transfer flow or agitation. Discharge (static spark) may ignite vapors, especially in cold, dry weather conditions. Special slow load and monitoring procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this material is loaded into tanks previously containing Gasoline or other low flash point products</p>

**EXTINGUISHING MEDIA**

SMALL FIRE: Use dry chemicals, carbon dioxide (CO<sub>2</sub>), foam, water fog, or inert gas (Halon or nitrogen). LARGE FIRE: Use water fog, waterspray, or foam. Foam and water are effective but may cause frothing. NEVER use a water jet because it may spread the fire to a larger area.

**FIRE FIGHTING**

Do not enter any enclosed or confined fire space without proper protective clothing and equipment. This must include a self-contained breathing apparatus to protect against the hazardous effects of combustion products and/or oxygen deficiencies. Cool tanks and containers exposed to fire with water. Withdraw immediately in case of rising sound from venting safety device or discoloration of the vessel, tank, or pipeline. Be aware that burning liquid will float on water. Notify the appropriate authorities if liquid(s) enter sewers or waterways.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

*Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview in Section 3 and Exposure Controls in Section 8 of this MSDS.*

**Flammable Liquid!** Release causes an potential fire or explosion hazard. Remove all ignition sources and safely stop flow of spill. Evacuate all non-essential personnel from immediate area, kill or isolate all ignition sources, and limit area access to only HAZWOPER-trained and properly equipped emergency personnel. Contain spill and prevent it from entering sewers or waterways. Material will float on water and its run-off may create an explosion or fire hazard. Absorb spill with an inert material and place in an appropriate waste disposal container.

Secure the area and control access. Verify that responders are properly HAZWOPER-trained and wearing appropriate protective clothing/equipment, including organic respirators or supplied air. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for recycle and/or disposal if it can be accomplished safely with explosion-proof equipment. Some spills may need to be reported to the National Response Center (800/424-8802).

**SECTION 7: HANDLING and STORAGE****Handling**

Do not handle near heat, sparks, or open flame. Spill/leak can cause fire/explosion. Keep container tightly closed. Do not contact with oxidizable materials. Use only with adequate ventilation/personal protection. Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Prevent contact with food, chewing, or smoking materials. Do not take internally. Keep containers closed and do not handle near heat, sparks, or open flame. A spill or leak can cause fire/explosion. Remove spillage immediately from hard, smooth walking areas. Do not contact with oxidizable materials. Do not breathe vapor. Use only with adequate ventilation/personal protection. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Prevent contact with food, chewing, or smoking materials. Do not take internally.

Sampling, transportation, and shipping personnel should use extreme caution when opening a sealed container or entering confined areas of stored petroleum oils. Hydrogen sulfide vapors may accumulate in tanks and transport compartments. Avoid breathing vapors when opening hatches and dome covers by staying upwind, venting slowly, and keeping your face away from compartment openings. Proper respiratory equipment should be used when entering any area where these vapors are being emitted. Hydrogen sulfide's (rotten egg) odor is not reliable as a warning of possible overexposure!

All material sampling should be conducted in a manner which avoids vapor inhalation or skin contact. All electrical equipment in areas where product is handled/stored should be installed in accordance with applicable requirements of the N.F.P.A.'s National Electrical Code (NEC). Parts and equipment using or containing this material should be steam-cleaned if possible prior to all maintenance procedures. Empty containers retain some liquid and vapor residues, so all hazard precautions must be observed when handling empty containers.

**Storage**

Flammable materials should be stored in floating-roof tank or a separate safety storage cabinet or room. Keep containers tightly closed in a cool, dry, well-ventilated place. Ground all equipment containing this material. A refrigerated room would be preferable for materials with a Flash Point lower than 70°F (AP 21°C). Keep away from heat and all other sources of ignition. **KEEP OUT OF CHILDREN'S REACH!**

**SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION****ENGINEERING CONTROLS**

Local exhaust and general room ventilation may both be essential in work areas to prevent accumulation of explosive gas/air mixtures. If mechanical ventilation is used, all equipment must comply with the National Electrical Code (NEC) Standards. Ensure that an eyewash station and safety shower are proximal to the work-station location.

**PERSONAL PROTECTIVE EQUIPMENT**• *Protective Equipment*• *Eye Protection*

Safety glasses with side shields are recommended as a minimum protection. Whenever there is a likelihood of misting or splashing/spraying liquid, chemical goggles and/or a face shield should be worn. Suitable eye wash water should be readily available. Hard contact lenses **MUST NOT** be worn.

• *Skin Protection*- *Hands*

Gloves (impervious, Neoprene or Nitrile). Wash hands with plenty of mild soap and water before eating, drinking, smoking, using toilet facilities, or leaving work. **DO NOT** use Kerosene, solvents, or harsh abrasive skin cleaners.

- *Body*

Avoid skin contact. If splashing or spraying is expected, impervious (Neoprene or Tyvek) protective clothing should be worn. This clothing might include long sleeves, apron, lab coat, boots, and additional facial protection. If general contact occurs, **IMMEDIATELY** take a shower. Remove soaked clothing as soon as possible and launder thoroughly before reuse. Discard contaminated leather gloves and shoes.

• *Respiratory Protection*

For unknown vapor concentrations use a self contained breathing apparatus (SCBA). For known vapor concentrations, above the exposure guidelines shown in this Section, also use a NIOSH/MSHA-approved SCBA or supplied air. Respirator use should follow OSHA requirements (29 CFR 1910.134) or equivalent.

• *General Comments*

**Warning!** Burning this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

**EXPOSURE GUIDELINES**

Substance	Source	Date	Type	Value	Time
HYDROGEN SULFIDE	OSHA	1989	PEL	10 ppm	8 Hrs
HYDROGEN SULFIDE	OSHA	1989	STEL	15 ppm	15 Mins
HYDROGEN SULFIDE	OSHA	1989	CEILING	20 ppm	1 Min
HYDROGEN SULFIDE	OSHA	1972	PEAK	50 ppm	10 Mins
HYDROGEN SULFIDE	ACGIH	2000	TLV	10 ppm	8 Hrs
HYDROGEN SULFIDE	ACGIH	2000	STEL	15 ppm	15 Mins
BENZENE	OSHA	1987	AL	0.5 ppm	8 Hrs
BENZENE	OSHA	1987	PEL	1 ppm	8 Hrs
BENZENE	OSHA	1987	STEL	5 ppm	15 Mins
BENZENE ("A1" Known Human Carcinogen)	ACGIH	2000	TLV	10 ppm	8 Hrs
XYLENE (XYLOL)	OSHA	1989	PEL	100 ppm	8 Hrs
XYLENE (XYLOL)	OSHA	1989	STEL	150 ppm	15 Mins
XYLENE (ortho-, meta-, & para-ISOMERS)	ACGIH	2000	TLV	100 ppm	8 Hrs
XYLENE (ortho-, meta-, & para-ISOMERS)	ACGIH	2000	STEL	150 ppm	15 Mins
ETHYL BENZENE	OSHA	1989	PEL	100 ppm	8 Hrs
ETHYL BENZENE	OSHA	1989	STEL	125 ppm	15 Mins
ETHYL BENZENE ("A3" Animal Carcinogen proposed for 2001)	ACGIH	2000	TLV	100 ppm	8 Hrs
ETHYL BENZENE ("A3" Animal Carcinogen proposed for 2001)	ACGIH	2000	TLV	125 ppm	15 Mins
OIL MIST, MINERAL	OSHA	1989	PEL	5 mg/M3	8 Hrs
PARTICULATE POLYCYCLIC AROMATICS (PPAH) ("A1" Carcinogen)	ACGIH	2000	TLV	0.2 mg/M3	8 Hrs
COAL TAR PITCH VOLATILES (CTPV) (as Benzene Solubles)	OSHA	1989	PEL	0.2 mg/M3	8 Hrs
OIL MIST, MINERAL (Sum of 15 PAHs listed as NTP Carcinogens) ("A1" Known Human Carcinogen proposed for 2001)	ACGIH	2001	TLV	0.005 mg/M3	8 Hrs

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	Viscous liquid.		
<b>Color</b>	Dark yellow to brown or greenish-black.		
<b>Odor</b>	Faint, pleasant hydrocarbon to pungent, offensive sulfurous. Odor threshold is 0.1 to 0.5 ppm in air.		
<b>pH</b>	Not applicable.		
<b>Vapor Pressure</b>	AP 0.8 to 2.6 psia at 100°F. or 100 to 800 mm of Hg at 68°F.	<b>Viscosity</b>	AP 300 to 1000 SUS at 100°F. (ASTM D-2161)
<b>Vapor Specific Gravity</b>	AP 5 to 9 when Air = 1 at 70°F.	<b>Melting/Freezing Pt.</b>	LT 32°F (0°C) (ASTM D-97)
<b>Volatile Characteristics</b>	Appreciable (10 to 50 Wt.%)	<b>Solubility in Water</b>	Slight (0.1 to 1.0 Wt.%)
<b>Boiling Point/Range</b>	AP 50° to 1200°F (ASTM D-86) (AP 10° to 650°C)	<b>Specific Gravity</b>	AP 0.74 to 0.99 (ASTM D-1250)
<b>Additional Properties</b>	API Gravity ranges from 22 to 30.		

**SECTION 10: STABILITY AND REACTIVITY**

<b>Chemical Stability</b>	Stable.
<b>Conditions to Avoid</b>	Heat, sparks, and open flames. Extended-period, heated storage of petroleum oil may evolve hydrogen sulfide, a flammable, toxic, and potentially deadly gas.
<b>Incompatibility with Other Materials</b>	Strong acids, alkalis, and oxidizers such as liquid chlorine, concentrated oxygen, and sodium or calcium hypochlorite.
<b>Hazardous Decomposition Products</b>	Burning or excessive heating may produce smoke, carbon monoxide, carbon dioxide, aldehydes, and other harmful gases/vapors including oxides and/or other compounds of heavy metals, nitrogen, sulfur, and possibly, hydrogen sulfide and alkyl mercaptans. Hydrogen sulfide is corrosive to many materials when moisture is present.
<b>Hazardous Polymerization</b>	Not expected to occur.

**SECTION 11: TOXICOLOGICAL INFORMATION****PETROLEUM:**

ORAL (LD50):	Acute: GT 4,300 mg/kg (Rat screen level).
ORAL (LD50):	Acute: GT 4,300 mg/kg (Mouse screen level).
DRAIZE EYE:	Acute: Mild to moderate eye irritant (Rabbit).
DRAIZE DERMAL:	Acute: Minimal to mild skin irritant (Rabbit).
BUEHLER DERMAL:	Acute: Sensitizer (Guinea Pig).
4-Day ORAL (TDLo):	Sub-chronic: 1,250 uL/kg (Rat) - Changes in liver enzymes & proteins.
4-Day ORAL (TDLo):	Sub-chronic: 40 mL/kg (Domestic Bird) - Changes in blood cells & counts.
21-Day ORAL (TDLo):	Sub-chronic: 30 gm/M3 (Rat) - Changes in blood serum, enzyme effects, & stomach absorption rates.
8-Week ORAL (TDLo):	Sub-chronic: 140,000 mg/kg (Duck) - Changes in spleen & ovarian weights.
26-Week ORAL (TDLo):	Chronic: 455,000 mg/kg (Duck) - Changes in liver weight & blood composition
10-Week DERMAL:	Sub-chronic: 40,000 mg/kg (Mouse) - Skin tumors at site of application.
104-Week DERMAL:	Chronic: 210 to 3,745 mg/kg (Mouse) - Skin tumors at site of application.
87-Weeks INTRAPLEURAL:	Chronic: 182,000 mg/kg (Rat) - Lung & thorax tumors.

**MUTAGENICITY:**

in-vivo Sister Chromatid Exchange:	Positive (Mouse).
in-vivo Micronuclei Exchange:	Positive (Mouse).
in-vitro Lymphoma Assay.	Positive (Mouse).
in-vitro SCE Ovary Assay.	Positive (Chinese Hamster).

Lifetime mouse skin painting studies have shown that some **Petroleum Crude Oils and their Middle Distillate fractions (boiling range of 300° to 700°F)** can cause skin tumors when repeatedly applied and never washed from an animal's skin. The skin tumor potency seems to increase with the Sulfur content and/or boiling point range. The 700° to 1,070°F boiling point fractions were highly active, as were all fractions containing Polynuclear Aromatic Hydrocarbons (PNA's or PAH's). The relative significance of these results to human health is uncertain since these oils were not washed from the skin and the resulting skin effects (defatting, irritation, cell damage, etc.) may play a role in the weak tumorigenic response. A few studies have shown that washing the animal's skin with soap and water between applications greatly reduces the carcinogenic effect of some Petroleum Middle Distillates.

Several epidemiological studies have shown an association between exposure to **Crude Petroleum Oils (or Crude Oil refining operations)** and cancer. Deaths from cancers of the lung, nasal cavity and sinuses, and skin were higher in U.S. counties where Petroleum industries were concentrated during the period of 1950 through 1969. In a Canadian study, employees exposed daily to Crude Petroleum Oils or their products had more than three times the risk of dying from esophageal and stomach cancer and twice the risk for lung cancer as non-exposed employees. In one Petroleum refinery in Washington state, workers were found to have an 8.5-fold excess risk of dying from astrocytic tumors in the brain as compared with age-matched controls. Other small population Petroleum refinery studies have shown increased death risks due to intestinal, kidney, and bladder cancers.

**Crude Petroleum Oils** and some of its components were found to be mutagenic by "in vitro" and "in vivo" testing. The genetic activity is expected due to "Aromatic Hydrocarbon compounds". The relationship between these results and possible human effects is not known.

**Benzene** has an IDLH (immediately dangerous to life or health) concentration of 500 ppm. Its estimated lethal dose for a normal human adult is one teaspoon to one ounce (AP 10 mL). Inhalation of 20,000 ppm in air is lethal to adults in 5 to 10 minutes. Studies with pregnant laboratory animals have demonstrated that benzene is **NOT** teratogenic, but is fetotoxic at exposure levels which result in mild maternal toxicity. There are also reports of human benzene exposure inducing vaginal bleeding, menstrual cycle disorders, and hemorrhagic complications during pregnancy. Benzene can be detected in maternal milk and it passes through the placental barrier. Limited evidence of developmental toxicity are suggested by decreased fetal body weight and increased skeletal variations in rodents. Also, alterations in the formation and development of blood cells in the bone marrow were observed in the fetus and offspring of pregnant mice.

There were no Benzene-induced blood toxin or leukemia effects noted in laboratory animals following long-term exposures to fully-volatilized **Unleaded Gasoline vapors containing 2 Vol.% Benzene**. However, the relative risk to humans for Benzene is still unknown.

An inhalation study with laboratory animals indicated an association of **xylene** with hearing loss in rats. Chronic overexposure to xylene may produce irreversible damage to the central nervous system, including ototoxicity, that can be increased by the consumption of ethanol (alcoholic drinks). Drinking beverages which contain **ethanol** in conjunction with **xylene** exposure increases the alcoholic effects and impairs the clearance of xylenes from the body. Xylene isomers accumulate in the adipose (fat) tissues, from which they are slowly released. Complete clearance may take several days following exposure.

Several animal studies using pregnant rodents have shown that **mixed xylene isomers (dimethylbenzenes) and ethylbenzene** may all cause embryo and/or fetotoxicity. Inhalation and feeding studies involving pregnant laboratory animals have produced limited evidence of fetal toxicity including increased incidence of spontaneous abortions, decreased fetal weight, delayed bone development, non-lethal abnormalities such as musculoskeletal and craniofacial variations, and reduced litter sizes. The significance of these animal study results to humans is not known. Xylenes may also cause teratogenic effects.

Two-year rat and mouse gavage (forced feeding) studies by the National Toxicology Program (NTP) using **mixed xylene isomers including 17% ethylbenzene** showed "no evidence of carcinogenicity". Also, a two-year mixed xylenes skin-painting study with shaved rats and mice showed "no incidence of non-neoplastic or neoplastic lesions". And, none of the components were mutagenic when tested in the modified Ames assay, Chinese hamster ovary (CHO) cell assay (with and without metabolic activation), or the in-vitro CHO sister-chromatid exchange (SCE) assay.

The National Toxicology Program (NTP) completed a 2-year inhalation bioassay of **ethylbenzene (EB)** in rodents. The study was conducted in rats and mice at exposure concentrations of 0, 75, 200, and 750 ppm. No significant effects were observed at the 75 and 200 ppm levels. However, compared to chamber controls, the severity of nephropathy was increased in rats at the 750 ppm level; and male rats had higher incidences of renal tubule carcinomas. Step section analyses of the kidneys found a significant increase hyperplasia and renal tubule adenomas in both male and female rats. Also at this 750 ppm level, male mice had a higher incidence of alveolar/bronchiolar adenomas and carcinomas and female mice had increased hepatocellular adenomas and carcinomas when compared to chamber controls. Hyperplasia was also observed in the thyroid gland of both sexes of mice and in the pituitary gland of female mice. The relevance of these findings to human health is unclear. However, based upon this data, the International Agency for Research on Cancer (IARC) has designated EB as possibly carcinogenic to humans (Group 2B).

**Naphthalene** is a potential irritant to eyes, skin, and lungs. Following prolonged and/or repeated exposures, naphthalene has been shown to cause eye damage (cataracts and/or optical neuritis), premature destruction of red blood cells (hemolytic and aplastic anemia), and kidney damage (jaundice), and possibly neurotoxicity. Naphthalene-induced blood disorders in humans are characterized by variability in size, shape, and number of red blood cells, anemia, and decreased hemoglobin. Also, there have been reported anemia deaths amongst children exposed to moth ball (naphthalene) saturated blankets. Peripheral lens opacities occurred in 8 of 21 workers exposed to elevated levels of naphthalene vapors for 5 years. Repeated ingestion of a naphthalene-isopropanol mixture caused tremors, restlessness, hallucinations, and extreme apprehension. Based upon animal studies, naphthalene may cause fetal toxicity or damage and decreased spleen weights in pregnant female mice.

The National Toxicology Program (NTP) recently completed a 2-year inhalation bioassay of **naphthalene**. The study was conducted in male and female F344/N rats at exposure concentrations of 0, 10, 30, and 60 ppm. No significant effects were observed at the 10 ppm levels. However, compared to chamber controls, there was a dose-related increase in tumors generated at the 30 and 60 ppm levels in both males and females. Higher incidences of respiratory epithelial adenomas, olfactory epithelial neuroblastomas, and non-neoplastic lesions of the nose were observed when compared to chamber controls. Additionally, in cytogenic tests with Chinese hamster ovary cells, naphthalene induced significant increases in sister chromatid exchanges with and without metabolic activation (S9) and in chromosomal aberrations with S9. The relevance of these findings to human health is unclear.

## SECTION 12: ECOLOGICAL INFORMATION

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Toxic aromatic hydrocarbon compounds (benzene, xylene isomers, ethylbenzene, etc.) from petroleum oils are volatile; and therefore, they may be released to the atmosphere and react with photochemically-produced hydroxyl radicals to create smog.

Petroleum will normally float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. Over time, if not removed, oxygen depletion in the waterway might be enough to cause a fish kill or create an anaerobic environment. This oil coating action can also kill plankton, algae, and water birds. Contaminated groundwater is also an important exposure pathway for humans.


Crude Petroleum Oils' water-soluble fractions are potentially toxic to freshwater and saltwater ecosystems. Using shrimp (*Mysidopsis almyra*), various Crude Oils showed a 48-hour TLm (Median Toxic Limit) from 6 ppm to 20 ppm in ambient saltwater. A 24-hour TLm resulted in 10,000 ppm when using freshwater *Daphnia* (*magna* and *pulex*) with many of the organisms being trapped in the oil layer. Based upon actual spill incident investigations, Crude Petroleum Oils have been shown to bioaccumulate in tissues of various fish from 1 to 5 ppm levels.

## SECTION 13: DISPOSAL CONSIDERATIONS

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Maximize product recovery for reuse or recycling. When disposing of this product, its storage tank water bottoms, sludge, contaminated soil, or water one must assume the waste material to be an EPA "Ignitable Hazardous Waste" (D001) and/or "Toxic Waste" (U018), unless proven otherwise by thorough analytical testing. Use approved treatment, transporters, and disposal sites in compliance with all applicable regulations. If spilled material is introduced into a wastewater treatment system, chemical and biological oxygen demand (COD and BOD) will likely increase. This material is biodegradable if gradually exposed to microorganisms, preferably in an aerobic environment. Vapor emissions from a bio-oxidation process might prove to be a potential health hazard. Potential treatment and disposal methods include incineration, land farming, and/or bioremediation, if permitted.

**SECTION 14: TRANSPORT INFORMATION**

<b>DOT Status</b>	A U.S. Department of Transportation regulated material.		
<b>Proper Shipping Name</b>	Petroleum Oil		
<b>Hazard Class</b>	3		
<b>UN/NA ID</b>	UN1270	<b>Packing Group(s)</b>	PG II or PG III
<b>Reportable Quantity</b>	RQs [ 4-6 FUSED-RING POLYNUCLEAR AROMATIC HYDROCARBONS (PNA's or PAH's), XYLENE (TOTAL OF ALL ISOMERS), ETHYLBENZENE, BENZENE, and NAPHTHALENE.]		
<b>Placards</b>		<b>Emergency Response Guide Number</b>	128
		<b>HAZMAT STCC Number</b>	Not available
		<b>MARPOL III Status</b>	This product might be a "Marine Pollutant".

**SECTION 15: REGULATORY INFORMATION**

<b>TSCA</b>	All components of this product are listed on the Toxic Substance Control Act (TSCA) inventory.										
<b>SARA 302/304</b>	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) established in 40 CFR Parts 302.4 and 355. Components present in this product which may require reporting are: <table border="0" style="width: 100%;"> <tr> <td>XYLENE (TOTAL OF ALL ISOMERS)</td> <td>HYDROGEN SULFIDE</td> </tr> <tr> <td>1,3-BUTADIENE</td> <td>BENZENE</td> </tr> </table>	XYLENE (TOTAL OF ALL ISOMERS)	HYDROGEN SULFIDE	1,3-BUTADIENE	BENZENE						
XYLENE (TOTAL OF ALL ISOMERS)	HYDROGEN SULFIDE										
1,3-BUTADIENE	BENZENE										
<b>SARA 311/312</b>	The Superfund Amendments and Reauthorization Act of 1989 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: <b>Immediate (Acute) Health and Delayed (Chronic) Health Hazards; Fire Hazard.</b>										
<b>SARA 313</b>	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of an annual release report of "Toxic Chemicals" that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are: <table border="0" style="width: 100%;"> <tr> <td>BENZENE</td> <td>XYLENE (TOTAL OF ALL ISOMERS)</td> </tr> </table>	BENZENE	XYLENE (TOTAL OF ALL ISOMERS)								
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<b>CERCLA</b>	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of "Hazardous Substances" equal to or greater than the "Reportable Quantities (RQs)" in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are: <table border="0" style="width: 100%;"> <tr> <td>4-6 FUSED-RING POLYNUCLEAR AROMATICS (PNA's)</td> <td>RQ: 1 to 100 Pounds (0.45 to 45 Kg.)</td> </tr> <tr> <td>XYLENE (TOTAL OF ALL ISOMERS)</td> <td>RQ: 100 Pounds (45 Kg.)</td> </tr> <tr> <td>ETHYLBENZENE</td> <td>RQ: 100 Pounds (45 Kg.)</td> </tr> <tr> <td>BENZENE</td> <td>RQ: 10 Pounds (4.5 Kg.)</td> </tr> <tr> <td>NAPHTHALENE</td> <td>RQ: 100 Pounds (45 Kg.)</td> </tr> </table>	4-6 FUSED-RING POLYNUCLEAR AROMATICS (PNA's)	RQ: 1 to 100 Pounds (0.45 to 45 Kg.)	XYLENE (TOTAL OF ALL ISOMERS)	RQ: 100 Pounds (45 Kg.)	ETHYLBENZENE	RQ: 100 Pounds (45 Kg.)	BENZENE	RQ: 10 Pounds (4.5 Kg.)	NAPHTHALENE	RQ: 100 Pounds (45 Kg.)
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BENZENE	RQ: 10 Pounds (4.5 Kg.)										
NAPHTHALENE	RQ: 100 Pounds (45 Kg.)										
<b>California Proposition 65</b>	Per the California Safe Drinking Water and Toxic Enforcement Act of 1986, this product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: 4-6 FUSED-RING POLYNUCLEAR AROMATIC HYDROCARBONS (PNA's or PAH's) <table border="0" style="width: 100%;"> <tr> <td>BENZENE</td> <td>TOLUENE (METHYLBENZENE)</td> </tr> </table> 1,3-BUTADIENE (ERYTHRENE OR PYRROLYENE)	BENZENE	TOLUENE (METHYLBENZENE)								
BENZENE	TOLUENE (METHYLBENZENE)										
<b>Additional Regulatory Remarks</b>	<b>Resource Conservation and Recovery Act (RCRA):</b> This substance, when discarded or disposed of, is not specifically listed as a "Hazardous Waste" in Federal regulations; however, it is considered to be hazardous because it is "toxic" and "ignitable" according to Environmental Protection Agency definitions (40 CFR 261). Additionally, it could be designated as hazardous according to various state and local regulations. This substance could also become a "Hazardous Waste" if it is mixed with or comes in contact with a "Hazardous Waste". If such contact or mixing may have occurred, check 40 CFR 261 to determine its status. If it is a "Hazardous Waste", regulations at 40 CFR 262, 263, and 264 apply. The transportation, storage, treatment, and disposal of "Hazardous Waste" materials must be conducted in compliance with all applicable Federal, state, and local regulations.										

This product is classified as an oil under Section 311 of the Clean Water Act (40 CFR 110) and the Oil Pollution Act of 1990 (40 CFR 112). Discharge or spills which produce a visible sheen on either navigable surface water, or in waterways and sewers which lead to navigable surface water, must be reported to the National Response Center (800-424-8802).

The Federal Hazardous Substances Act, related statutes, and Consumer Product Safety Commission regulations, as defined by 16 CFR 1500.14(b)(3) and 1500.83(a)(13): This product contains "Petroleum Distillates" which require special labeling if distributed in a manner intended, or packaged in a form suitable, for use in the household or by children. Precautionary label dialogue must display the following: **Contains Petroleum Distillates! May be harmful or fatal if swallowed! KEEP OUT OF REACH OF CHILDREN! DO NOT SIPHON BY MOUTH!**

Toxic Substances Control Act (TSCA) - Section 12(b): Because this product probably contains detectable amounts of METHYLCYCLOPENTANE, CYCLOHEXANE, n-HEXANE, and/or 1,3,5-TRIMETHYLBENZENE (MESITYLENE), it might be subject to the **Export Notification** requirements of the Environmental Protection Agency.

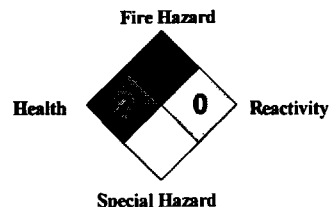
**SECTION 16: OTHER INFORMATION**

HMIS (U.S.A.)

Health Hazard	*2
Fire Hazard	3
Reactivity	0

\* = Chronic Health Hazard

National Fire Protection Association (U.S.A.)



REVISION INFORMATION

Version Number	03
Revision Date	11/01/06
Latest Revision	Logo and Manufacturer name change.

ABBREVIATIONS

- AP = Approximately    EQ = Equal    GT = Greater Than    LT = Less Than    NA = Not Applicable    ND = No Data
- ACGIH = American Conference of Governmental Industrial Hygienists
- IARC = International Agency for Research on Cancer    NTP = National Toxicology Program
- NIOSH = National Institute of Occupational Safety and Health    OSHA = Occupational Safety and Health Administration

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\*\*\*\*\* END OF MSDS \*\*\*\*\*