1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: US Domestic Crude Oil
Synonyms: Crude Oil
Chemical Family: Petroleum Hydrocarbon
Formula: Complex mixture

Greenwich, CT. 06830
Phone: 203-542-6405
Fax: 281-474-7325

Emergency Contact:

For Hazardous Materials, Dangerous Goods Incident or Chemical Emergency
Spill, Leak, Fire, Exposure, or Accident
Call Chemtrec Day or Night

Within the U.S. or Canada: 1 800 424 9300
Outside the U.S. and Canada: +1 703 527 3887 (collect calls accepted)

MSDS prepared by: Paule Patterson, ENERCON Services, Inc.

Petroleum Crude Oil is a complex mixture of paraffinic, cycloparaffinic and aromatic hydrocarbons covering carbon numbers ranging from C1 to C60+.

Can contain minor amounts of sulfur, nitrogen and oxygen compounds as well as trace amounts of heavy metals such as nickel, vanadium and lead. Composition varies depending on source of crude.

EMERGENCY OVERVIEW

DANGER!!
EXTREMELY FLAMMABLE- MAY EVOLVE TOXIC AND FLAMMABLE HYDROGEN SULPHIDE GAS
- EYE, SKIN AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM -
HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD.

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources. HYDROGEN SULPHIDE (toxic gas) may be released. High concentration may cause immediate unconsciousness - death may result unless victim is promptly and successfully resuscitated.

Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects. Contains benzene, which can cause blood disease, including leukemia. Benzene and Toluene is readily absorbed through intact skin.

2. HAZARDS IDENTIFICATION OF THE PREPARATION

This preparation is not classified as hazardous according to 29CFR 1910-1200.

EMERGENCY OVERVIEW

The International Agency for Research on Cancer (IARC) has determined that there is limited evidence for the carcinogenicity of crude oil in animals. IARC has determined that there is inadequate evidence for the carcinogenicity of crude oil in humans. Crude oil is not classifiable as to its carcinogenicity to humans (Group 3).

CONSUMER WARNING LABEL:

CRUDE OIL IS AN AMBER TO BLACK IN COLOR DEPENDING ON THE SOURCE. IT POSSESSES A ROTTEN EGG OR SULFUR ODOR. CRUDE OIL IS A VOLATILE AND EXTREMELY FLAMMABLE LIQUID. VAPORS MAY CAUSE FLASH FIRES. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. REPEATED AND LONG TERM SKIN EXPOSURE CONTACT TO COMPONENTS OF THIS PRODUCT HAS CAUSED SYSTEMIC TOXICITY AND CANCER IN LABORATORY ANIMALS. CAN CONTAIN TOXIC LEVELS OF HYDROGEN SULFIDE VAPORS THAT ACCUMULATE IN THE VAPOR SPACES OF STORAGE AND TRANSPORT COMPARTMENTS. H2S VAPORS CAN CAUSE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION AND ASPHYXIATION.

THIS PRODUCT MAY CONTAIN BENZENE. BENZENE MAY CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS. IF SWALLOWED, THE VOLATILE COMPONENTS OF THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH.

DANGER!

FLAMMABLE LIQUID.

REPEATED AND LONG TERM SKIN EXPOSURE TO COMPONENTS OF THIS PRODUCT HAS CAUSED SYSTEMIC TOXICITY AND CANCER IN LABORATORY ANIMALS.

MAY VENT HARMFUL CONCENTRATIONS OF HYDROGEN SULFIDE (H2S) GAS WHICH CAN CAUSE RESPIRATORY IRRITATION AND ASPHYXIATION.

CONTAINS BENZENE WHICH MAY CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS.

IF SWALLOWED, THE VOLATILE COMPONENTS OF THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH.

ROUTE(S) OF ENTRY

Eyes: Yes Skin: Yes Inhalation: Yes Ingestion: Yes

EYES
MODERATE TO SEVERE IRRITANT. Liquids and vapors may cause irritation to the eyes, conjunctiva, and mucous membranes, causing redness and tearing. Splashing of liquid into the eyes will cause smarting and pain.

SKIN
SLIGHT TO MODERATE IRRITANT. Contact may cause irritation to the skin and mucous membranes upon prolonged and/or repeated skin contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed. Prolonged or repeated contact to petroleum oil with skin may cause defatting of the skin leading to redness, itching, inflammation, cracking, dermatitis (rash), and possible secondary infection. High-pressure skin injections are serious medical emergencies. The appearance of injury may be delayed for a few hours, but may cause tissue to become swollen, discolored and extremely painful.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluids in the lungs), severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, such as irritation, nausea, vomiting and diarrhea, and central nervous system effects. Acute symptoms of ingestion are most common, including excitation, restlessness, euphoria, nausea, headache, dizziness, drowsiness, blurred vision, reduced coordination, and fatigue. In more severe cases, tremors, convulsions, loss of consciousness, coma, respiratory

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS/CARCINOGENICITY
Contains carcinogens according to IARC, NTP, ACGIH and OSHA. Contains benzene; a regulated human carcinogen. Benzene is recognized as having the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash) conditions. Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

EMERGENCY

Inhalation: Vapors and fumes can cause respiratory and nasal irritation. Significant concentrations of hydrogen sulfide gas can be present in the vapor space of storage tanks and bulk transport compartments (See Sections 7, 8 & 11).

Ingestion: The volatile components of this product may be toxic by ingestion. Aspiration

(inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema/hemorrhage and even death.

Skin contact: Prolonged or repeated liquid contact can cause dermatitis, folliculitis or oil acne.

Eye contact: Liquid or vapor contact may result in slight eye irritation.

Notes: The International Agency for Research on Cancer (IARC) has determined that there is limited evidence for the carcinogenicity of crude oil in animals. IARC has determined that there is inadequate evidence for the carcinogenicity of crude oil in humans. Crude oil is not classifiable as to its carcinogenicity to humans (Group 3).

CONSUMER WARNING LABEL:
CRUDE OIL IS AN AMBER TO BLACK IN COLOR DEPENDING ON THE SOURCE. IT POSSESSES A ROTTEN EGG OR SULFUR ODOR. CRUDE OIL IS A VOLATILE AND EXTREMELY FLAMMABLE LIQUID. VAPORS MAY CAUSE FLASH FIRES. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. REPEATED AND LONG TERM SKIN EXPOSURE CONTACT TO COMPONENTS OF THIS PRODUCT HAS CAUSED SYSTEMIC TOXICITY AND CANCER IN LABORATORY ANIMALS. CAN CONTAIN TOXIC LEVELS OF HYDROGEN SULFIDE VAPORS THAT ACCUMULATE IN THE VAPOR SPACES OF STORAGE AND TRANSPORT COMPARTMENTS. H2S VAPORS CAN CAUSE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION AND ASPHYXIATION. THIS PRODUCT MAY CONTAIN BENZENE. BENZENE MAY CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS. IF SWALLOWED, THE VOLATILE COMPONENTS OF THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH.

DANGER!
FLAMMABLE LIQUID.
REPEATED AND LONG TERM SKIN EXPOSURE TO COMPONENTS OF THIS PRODUCT HAS CAUSED SYSTEMIC TOXICITY AND CANCER IN LABORATORY ANIMALS.

MAY VENT HARMFUL CONCENTRATIONS OF HYDROGEN SULFIDE (H2S) GAS WHICH CAN CAUSE RESPIRATORY IRRITATION AND ASPHYXIATION.

CONTAINS BENZENE WHICH MAY CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS.

IF SWALLOWED, THE VOLATILE COMPONENTS OF THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH.

EMERGENCY OVERVIEW

OSHA WARNING LABEL:

Toluene 108-88-3 A4 - Not Classifiable as a Human Carcinogen

Xylene 1330-20-7 A4 - Not Classifiable as a Human Carcinogen

Benzene 71-43-2 Supplement 7, 1987; Monograph 29, 1982 Known Carcinogen
Reasonably Anticipated To Be A Carcinogen
A1 - Confirmed Human Carcinogen Present

Notes: The International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), and OSHA have determined that there is sufficient evidence for the carcinogenicity of benzene in humans (Group 1A).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture of the below mentioned materials and non-hazardous substances
Hazardous components:

Crude oil is a mixture of naturally occurring paraffins; napthenes; aromatic hydrocarbons and small amounts of sulfur and nitrogen compounds. The composition and properties will vary significantly according to the source of the crude. Crude oil with a sulfur content greater than 0.5 weight percent is considered sour.
This product is a commingled stream from multiple petroleum facilities and is a complex mixture consistent with the definition within WHMIS regulation CPR section 2. The listed components are provided as guidance based on the available knowledge of the commingled stream.

Ingredient Name	CAS #	CAS #
Crude Oil 100	0.1 to 5	8002-05-9
Benzene	0.1 to 5	71-43-2
Toluene	0.1 to 5	108-88-3
Ethylbenzene	0.1 to 5	100-41-4
Xylene, Mixed isomers	0.1 to 5	1330-20-7
Hydrogen Sulfide	0.1 to 5	7783-06-4

4. FIRST AID MEASURES

Inhalation: If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. If symptoms or irritation occur with any exposure, call a physician.

Skin contact: Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. High-pressure injections are serious medical emergencies - seek immediate medical attention. Wash with soap and large amounts of water. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion: DO NOT INDUCE VOMITING BECAUSE OF DANGER OF BREATHING LIQUID INTO LUNGS. Seek immediate medical attention. Rinse mouth with water. Administer 1 to 2 glasses of water or milk to drink. Never administer liquids to an unconscious person.
If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Seek medical attention. Monitor for breathing difficulty.

Eye contact: Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician. Hold eyelids open to ensure adequate flushing. Seek medical attention.

Medical conditions aggravated by exposure:
Preexisting skin, eye and respiratory disorders may be aggravated by exposure to components of this product.

5. FIRE-FIGHTING MEASURES

EXTREMELY FLAMMABLE. This is a commingled petroleum stream from various locations and producers the actual flammable characteristics are difficult to predict but this product should be considered as an extremely flammable liquid. Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard. Liquids will float on water. Liquid may accumulate static charge.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires - dry chemical, CO2, water spray, fire foam, or Halon.

LARGE FIRES: Water spray, fog or fire foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment.
Fire fighting activities that may result in potential exposure to high heat, smoke or toxic byproducts of combustion should require approved self-contained breathing apparatus (SCBA) with full-face piece and full protective firefighting clothing. Isolate area around container involved in fire.
Cool tanks, shells, and containers exposed to fire and excessive heat with water. If leak or spill has not ignited, ventilate area and determine if water spray would assist in dispersing gas or vapor to protect personnel attempting to stop leak. Water may be useful in flushing spills away from ignition sources; however, do NOT flush petroleum products down public sewers or other drainage systems.

For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam. Refer to NAERG Guide 128.
Suitable extinguishing media: For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used.
For large fires, water spray, fog or foam (AFFT/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards: This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard, and should be handled accordingly. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail.
For additional fire related information see NFPA 30 or North American Emergency Response Guide 115.

Special protective equipment for firefighters: Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Keep run-off water out of sewers and water sources.

Flash point: 20-100 F
Auto ignition temperature: No data available.
Flammable limits in air - lower (%): No data available.
Flammable limits in air - upper (%): No data available.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE YOUR FACILITY'S SITE SPECIFIC EMERGENCY RESPONSE PLAN IF AVAILABLE. Evacuate nonessential personnel and remove or secure all ignition sources for 300m (1000ft). Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Hydrogen sulfide may be evolved during a release, ensure response personnel are adequately protected - see Section 8 for personal protection.
Carefully contain and stop the source of the spill, if safe to do so. Do not flush down sewer or drainage systems.
Protect bodies of water by diking, if possible. The use of fire fighting foam may be useful in certain situations to reduce vapors.

SMALL SPILLS: Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Cleanup crews must be properly trained and must utilize proper protective equipment.

LARGE SPILLS: Dike far ahead of the spill. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas /equipment that require protection.
Consideration should be given to environmental clean-up and waste material generation when determining if the use of large volumes of water is appropriate for non-fire emergency situations. Cleanup crews must be properly trained and must utilize proper protective equipment. Notify regulatory authorities. Refer to NAERG Guide 128.

Personal precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so.
Advise authorities and National Response Center (800-424-8802) if substance has entered a watercourse or sewer.
Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids.

7. HANDLING AND STORAGE

Handling:
Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues.
Harmful concentrations of hydrogen sulfide (H2S) gas can accumulate in excavations and low-lying areas as well as the vapor space of storage and bulk transport compartments. Stay upwind and vent open hatches before unloading.

WORK/HYGIENIC PRACTICES
Emergency eye wash capability should be available in the vicinity of any potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Do not use gasoline or solvents (naphtha, kerosene, etc) for washing this product from exposed skin areas. Waterless hand cleansers are effective.
Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

Avoid skin contact. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation.

Respiratory protection: Not required under normal conditions and adequate ventilation. Supplied air respirators should be used if operating conditions create airborne concentrations which exceed exposure limits for any individual components (including H2S).
Observe respirator protection factor criteria cited in ANSI Z88.2. Self-contained breathing apparatus should be used for fire fighting.

Skin and body protection: Neoprene or nitrile gloves to prevent skin contact.

Eye protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields.

Hygiene measures: Use mechanical ventilation equipment that is explosion-proof.

EXPOSURE LIMITS

Ingredient Name	**CAS #**	**Exposure Limit**
Benzene	71-43-2	ACGIH TWA= 0.5 ppm (skin) ACGIH TLV-STEL= 2.5 ppm
Toluene	108-88-3	ACGIH TWA= 50 ppm (skin)
Ethylbenzene	100-41-4	ACGIH TWA= 100 ppm ACGIH STEL = 125 ppm
Xylene, mixed isomers	1330-20-7	ACGIH TWA= 100 ppm
Hydrogen Sulphide	7783-06-4	ACGIH TWA= 5 ppm ACGIH STEL= 10 ppm

ENGINEERING CONTROLS:
Use adequate ventilation to keep vapor and mist concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified/controlled areas.

EYE/FACE PROTECTION:
Face shield or chemical splash goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION:
Avoid repeated or prolonged skin contact. Gloves constructed of nitrile, neoprene, or PVC are recommended.
Chemical protective clothing such as of poly-coated or equivalent recommended based on degree of exposure. Note: The resistance of specific materials may vary from product to product as well as degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION:
For hydrogen sulfide hazard (above H2S permissible exposure limits): SCBA or a supplied air respirator must be used.
If exposure assessment indicates NO reduced oxygen content or hydrogen sulfide hazard (below H2S exposure limit): NIOSH/MSHA - approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited and should not be considered especially when odor cannot be used to determine respirator effectiveness. Use a positive pressure, air supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, or any other circumstance where an air-purifying respirator may not provide adequate protection.
Refer to CSA Standard “Selection, Use and Care of Respirators” (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES:
BASIC PHYSICAL PROPERTIES

APPEARANCE
Generally a thick, dark yellow to brown or greenish black liquid.

ODOR
A hydrocarbon odor. If present Hydrogen Sulfide (H2S) has a rotten egg odor, but should not be used as warning property of toxic levels because H2S can overwhelm and deaden the sense of smell. Therefore the smell of H2S should not be used as an indicator of a hazardous condition - a calibrated H2S meter can be used to determine the concentration of H2S.

PHYSICAL STATE: Liquid
FLASH POINT: -20^{o}C to 93.3 ^{o}C (Flash point are in the flammable range but are highly dependent on crude oil source. This is a commingled stream of crude oils from various producers.
BOILING POINT: -20^{o} to 1100 ^{o}C
VAPOR PRESSURE: varies
VAPOR DENSITY (Air = 1): 3 to 5
SPECIFIC GRAVITY: 0.86 to 0.95 (water - 1.0):
SOLUBILITY (H2O): Insoluble to slightly soluble
PARTITION COEFFICIENT: 2 to 6

6. ACCIDENTAL RELEASE MEASURES:
Collect with liquid absorbing material and proceed according to local waste disposal regulations. Do not allow large quantities of product to enter waste stream.

7. HANDLING AND STORAGE:
Heed the usual precautionary measures of handling chemicals.
Store container in cool and dry location.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION:
Occupational exposure limit:
No exposure limits established for ingredients
Personal Protection
Protective gloves
Protective goggles recommended
General Hygiene Considerations: Wash thoroughly after handling. Have eyewash facilities immediately available.

9. PHYSICAL AND CHEMICAL PROPERTIES
Form: viscous liquid
Color: blue
Odor: typical
Flash point: n.a.
Ignition temperature: n.a.
Density: 1.06 g/cm3
Boiling Point: ~212°F (~100°C)
Viscosity: unknown
pH: unknown
VOC Content: <0.1%

10. STABILITY AND REACTIVITY
STABILITY: Stable

CONDITIONS TO AVOID (STABILITY)
Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS
Keep away from strong oxidizers, ignition sources and heat.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

HAZARDOUS POLYMERIZATION: Will Not Occur.

11. TOXICOLOGICAL INFORMATION

ACUTE EFFECTS

Potential short-term effects of exposure are: irritation eyes, skin, nose, mucous membrane, and respiratory system.
Repeated or prolonged skin exposure to petroleum oils may cause various skin disorders, such as contact or eczematous dermatitis, folliculitis, oil acne, lipid granuloma, melanosis, and rarely precancerous warts on the forearms, backs of hands or scrotum. Contains Benzene and Toluene, which are readily absorbed through intact skin and have Skin Notations by ACGIH.

ACUTE ORAL EFFECTS
Ingredient CAS No LD50 LC50
Crude Oil 8002-05-9 Rat oral >5000mg/kg
Dermal Toxicity > 2000 mg/kg
Not available
Toluene 108-88-3 Rat oral 5000 mg/kg 400 ppm/4hr
Ethyl benzene 100-41-4
Rat oral 3500 mg/kg
Rabbit skin 17,800 mg/kg Not available
Xylene, mixed isomers
1330-20-7 Mouse oral 1590 mg/kg Rat inhalation: 6,350 ppm/4 hr
Benzene 71-43-2 Rat oral 3306 mg/kg Rat ihl 10,000 ppm/7 hr
Hydrogen Sulfide 7783-06-4 Not applicable
Rat inhalation 380 mg/ cu m > 960 min

CHRONIC EFFECTS/CARCINOGENICITY
Product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood forming system (particularly bone marrow), and serious blood disorders, such as leukemia. Benzene is listed by the National Toxicology Program (NTP), International Agency For Research on Cancer (IARC), and ACGIH as carcinogenic in humans.

Product contains polynuclear aromatic hydrocarbons (PAHs). Animal studies have shown that prolonged and/or repeated exposure to certain PAHs may cause cancer of the skin, lung and other organs.

Other potential chronic effects of exposure are: irritation eyes, skin, nose, mucous membrane, respiratory system; dizziness, anorexia, vomiting, abdominal pain; dermatitis, excitement, confusion, euphoria, drowsiness, incoordination, staggered gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis; lassitude (weakness, exhaustion), headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; liver, kidney damage, bone marrow depression; [potential occupational carcinogen], narcosis, coma.

Similar products produced skin cancer and skin tumors in laboratory animals following repeated applications. Crude oils may contain some PAH’s, which have been shown to be carcinogenic after repeated or prolonged skin contact in laboratory animals. Studies by API and others have shown that some crude oils produced skin cancer or skin tumors in laboratory animals following

repeated applications without washing or removal between applications. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation. Potential risks to humans can be minimized by observing good work practices and personal hygiene procedures.

MUTAGENICITY (GENETIC EFFECTS)
Some crude oils and crude oil fractions have been positive in mutagenic assay tests.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects: Coating action of oil can kill birds, plankton, algae and fish. Keep out of all bodies of water and sewage drainage systems.
Two crude oils were tested in a acute battery of ecotoxicity tests. The 96 hour lethal loading (LL50) values for rainbow trout were 21 and 41 mg/l. LL50s for invertebrate organisms (mysid) were determined to be 2.7 and 4.1 mg/l and EL50s for algae were 122 and 528 ml/kg.

13. WASTE DISPOSAL INFORMATION

Cleanup Considerations: This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of an "characteristic" hazardous waste. This product could also contain benzene at >0.5 ppm and could exhibit the characteristics of "toxicity" as determined by the toxicity characteristic leaching procedure (TCLP). This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s).
It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.
Empty container: scrap metal recycling or re-conditioning
Soiled container: (treatment like product itself)

14. TRANSPORT INFORMATION

49 CFR 172.101:
DOT:
Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.
Proper shipping name: Petroleum Crude Oil
UN/Identification No: UN 1267
Hazard Class: 3
Packing group: II
DOT reportable quantity (lbs): Not applicable.
TDG (Canada):
Proper shipping name: Petroleum Crude Oil
UN/Identification No: UN 1267
Hazard Class: 3
Packing group: II

Regulated substances: Not applicable.

15. REGULATORY INFORMATION

Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.
OSHA Hazard Communication Standard: This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Petroleum Crude Oil NA
Normal Hexane NA
Toluene NA
Xylene NA
Sulfur Compounds NA
Benzene NA
Hydrogen Sulfide hydrogen sulfide

SARA Section 304: This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Petroleum Crude Oil NA
Normal Hexane = 2270 kg final RQ= 5000 lb final RQ
Toluene = 0.454 kg final RQ = 1 lb final RQ
= 10 lb final RQ
= 100 lb final RQ
= 1000 lb final RQ
= 4.54 kg final RQ
= 45.4 kg final RQ
= 454 kg final RQ
Xylene = 100 lb final RQ = 45.4 kg final RQ
Sulfur Compounds NA
Benzene = 0.454 kg final RQ = 0.454 kg statutory RQ
= 1 lb final RQ
= 1 lb statutory RQ
= 10 lb final RQ
= 10 lb final RQ receives an adjustable RQ of 10 lbs based on potential carcinogenicity in August 14, 1989 final rule
= 100 lb final RQ

= 4.54 kg final RQ
= 4.54 kg final RQ receives an adjustable RQ of 10 lbs based on potential carcinogenicity in August 14, 1989 final rule
= 45.4 kg final RQ
Hydrogen Sulfide = 100 lb final RQ = 45.4 kg final RQ

SARA Section 311/312: The following EPA hazard categories apply to this product:
Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313: This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name CERCLA/SARA 313 Emission reporting:
Petroleum Crude Oil = 100 lb Reporting Threshold Chemical Category N590, PBT Chemicals
Normal Hexane = 1.0 %
Toluene = 1.0 %
Xylene = 1.0 %
Sulfur Compounds None
Benzene = 0.1 %
Hydrogen Sulfide None

Canadian Regulatory Information:
Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or the Non Domestic Substance List (NDSL).

Name Canada - WHMIS: Classifications of Substances: Canada - WHMIS: Ingredient Disclosure:
Petroleum Crude Oil B2
Normal Hexane B2; D2B 1% (English Item 827, French Item 964)
1% (English Item 828, French Item 965)
Toluene B2; D2A 1% (English Item 1578, French Item 1622)
Xylene B2; D2A; D2B
Benzene B2; D2A 0.1% (English Item 153, French Item 277)
Hydrogen Sulfide A; B1; D1A; D2B 1% (English Item 851, French Item 1550)

16. OTHER INFORMATION
Additional Information: The pronounced and easily-recognized rotten egg odor of hydrogen sulfide gas (H2S) can be detected at concentrations as low as 0.003-0.13 ppm. Since higher H2S concentrations (100-200 ppm) cause olfactory fatigue and other hydrocarbon odors can "mask" H2S, the sense of smell cannot be used as a reliable indicator of H2S exposure.

.
NFPA HAZARD RATING HEALTH: 3 High

FIRE: 3 High
REACTIVITY: 0 Negligible

References: ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet.
29CFR Part1910.1200 OSHA MSDS Requirements.
49CFR Table List of Hazardous Materials
UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2.
Registration SOR/88-64, 31 December 1987.
Hazardous Products Act "Ingredient Disclosure List"
Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

DISCLAIMER OF RESPONSIBILITY:
Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Freepoint Commodities LLC extends no warranty and assumes no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This material safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.