

## 1. Product and Company Identification

<b>Material name</b>	<b>Crude oil (Sour)</b>
<b>Version #</b>	01
<b>Revision date</b>	06-02-2010
<b>Product use</b>	Feed Stock.
<b>Manufacturer/Supplier</b>	Devon US Operations 20 North Broadway Oklahoma City, OK 73102-8260 Telephone: (405) 235-3611 - Devon Canadian Operations Calgary, AB. T2P 4H2 2000, 400 – 3rd Avenue SW. Telephone: (403) 232-7100
<b>Emergency</b>	Emergency Chemtrec: Within the USA (800) 424-9300 Outside the USA (703) 527-3887 Devon Canada Emergency Phone: (403) 232-7100

## 2. Hazards Identification

<b>Physical state</b>	Liquid.
<b>Appearance</b>	Thick, flammable, dark yellow to brown or green-black liquid.
<b>Emergency overview</b>	DANGER

Extremely flammable liquid and vapor - vapor may cause flash fire. Harmful or fatal if swallowed. Can enter lungs and cause damage. May cause skin irritation. Vapors may cause drowsiness and dizziness.

Hydrogen sulfide, a highly toxic gas, is present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Contains n-hexane. Prolonged and/or repeated exposures may cause damage to the peripheral nervous system (e.g. fingers, feet, arms etc.). Contains benzene. May cause cancer. May cause heritable genetic damage. May cause drowsiness, dizziness, loss of consciousness and death.

**OSHA regulatory status** This substance is classified as dangerous according to Directive 67/548/EEC.

### Potential health effects

#### Routes of exposure

Ingestion. Skin contact. Eye contact. Inhalation.

#### Eyes

Causes eye irritation. Exposed individuals may experience eye tearing, redness, and discomfort.

#### Skin

May cause skin irritation. Human and animal studies show that benzene is absorbed through the skin. However, absorption through the skin is normally low because benzene evaporates rapidly. In most cases, any skin contact would also involve significant inhalation exposure.

#### Inhalation

Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Contains benzene which may cause cancer and cause blood disorders. Contains n-hexane which may cause peripheral nerve damage.

#### Ingestion

Harmful if swallowed. Can enter lungs and cause damage.

### Chronic effects

Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. Prolonged and repeated contact with the product may cause skin cancer. May cause damage to the liver. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia. Contains benzene. Human epidemiology studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-producing system and serious blood disorders, including leukemia. Animal tests suggest that prolonged and/or repeated overexposure to benzene may damage the embryo/fetus. The relevance of these animal studies to humans has not been fully established. May cause cancer. Contains n-hexane. Prolonged and/or repeated exposures may cause damage to the peripheral nervous system (e.g. fingers, feet, arms etc.).

**Signs and symptoms** Irritation of eyes and mucous membranes. Skin irritation. Defatting of the skin. Dermatitis. May irritate and cause stomach pain, vomiting, diarrhea and nausea.

**Potential environmental effects** Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 3. Composition / Information on Ingredients

Components	CAS #	Percent
Crude oil	8002-05-9	95-100
Contains:	-	-
n-Hexane	110-54-3	2-8
Pentane	109-66-0	0-6
Heptane	142-82-5	0-5
Octane	111-65-9	0-5
Benzene	71-43-2	0-5
Methylcyclohexane	108-87-2	0-4
Ethylbenzene	100-41-4	0-3
Xylene	1330-20-7	0-3
Toluene	108-88-3	0-2
Hydrogen sulfide	7783-06-4	> 0.001

**Composition comments** The full text for all R-phrases is displayed in Section 16 of the MSDS. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First Aid Measures

#### First aid procedures

##### Eye contact

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if irritation develops or persists.

##### Skin contact

Remove contaminated clothing. Wash with soap and water. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along these instructions.

##### Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if discomfort develops or persists.

##### Ingestion

Immediately rinse mouth and drink plenty of water or milk. Keep person under observation. Do not induce vomiting. If vomiting occurs, keep head low. Seek immediate medical attention or advice.

#### Notes to physician

Treat symptomatically. The effects might be delayed.

#### General advice

Get medical attention if any discomfort develops. Refer to the Emergency Response Procedures for Ships Carrying Dangerous Goods (EmS Guide) and the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) as necessary.

### 5. Fire Fighting Measures

#### Flammable properties

The product is extremely flammable, and explosive vapor/air mixtures may be formed even at normal room temperatures. Material will float and can be re-ignited on surface of water.

#### Extinguishing media

##### Suitable extinguishing media

Extinguish with foam, carbon dioxide, dry powder or water fog.

##### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

#### Protection of firefighters

##### Specific hazards arising from the chemical

Thermal decomposition may produce smoke, oxides of carbon and lower molecular weight organic compounds whose composition have not been characterized. Sulphur Oxides (SOx). Nitrogen Oxides (NOx).

##### Protective equipment and precautions for firefighters

Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

**Special protective equipment for fire-fighters** Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with full face-piece operated in positive pressure mode. Use approved gas detectors in confined spaces.

**Specific methods** In the event of fire and/or explosion do not breathe fumes. Evacuate area. Water spray should be used to cool containers.

## 6. Accidental Release Measures

**Personal precautions** Eliminate all sources of ignition in vicinity of released vapors. Evacuate all non-essential personnel to an area upwind. Stop leak if possible without any risk. Ventilate enclosed areas to prevent formation of toxic, flammable or oxygen deficient atmospheres. Water spray may be used to reduce vapors. Avoid vapor cloud even with proper respiratory protective equipment. Use suitable protective equipment (section 8). Follow all fire-fighting procedures (section 5). In case of spills, beware of slippery floors and surfaces.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent material from entering drains, sewers or low lying areas. See section 13 for waste disposal information. Do not contaminate water.

**Methods for containment** Stop leak if you can do so without risk. Prevent entry into waterways, sewer, basements or confined areas.

**Methods for cleaning up** Remove sources of ignition. Beware of the explosion danger. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.

Small Spills: Absorb spillage with non-combustible, absorbent material.

Large Spills: Remove with vacuum trucks or pump to storage/salvage vessels. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Wash area with soap and water. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labeled container.

## 7. Handling and Storage

**Handling** Access to work area should be restricted to people handling the product only. Caution! Vapors may be present in the headspace of closed containers. Ventilate after opening. The inherent toxic and olfactory (sense of smell) fatiguing properties of hydrogen sulfide require that air monitoring alarms be used if concentrations are expected to reach harmful levels, such as in enclosed spaces, heated transport vessels and spill or leak situations. If the air concentration exceeds 10 ppm, the area should be evacuated unless respiratory protection is in use. Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapors. Wear appropriate personal protective equipment. Immediately change contaminated clothes. The product is extremely flammable, and explosive vapor/air mixtures may be formed even at normal room temperatures. Ground container and transfer equipment to eliminate static electric sparks. Vapors are heavier than air and may travel along the floor and in the bottom of containers. Do not eat, drink or smoke when using the product. Be aware of potential for surfaces to become slippery. Observe good industrial hygiene practices. Put on appropriate personal protective equipment (see section 8). Special precautions should be taken when entering or handling equipment in this type of gas service because of possible radioactive contamination. All equipment should be checked for radioactivity or opened to the atmosphere and have forced ventilation applied for at least 4 hours prior to entry or handling. Avoid direct skin contact with any surface. Avoid generation of dust, smoke, fumes, etc. in the work area, or if they cannot be avoided, a tested and certified radionuclide dust respirator should be worn. Smoking, eating, or drinking should be prohibited when working with the equipment. Employees should wash thoroughly with soap and water and discard contaminated clothing after entering or handling the equipment. Workers should wash hands and face before eating, drinking and smoking. Do not breathe gas it contains benzene and n-hexane. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter enclosed areas and confined space unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Pumping and transferring operations must be electrically grounded and bonded to dissipate static build up.

**Storage** Follow rules for flammable liquids. Keep away from heat, sparks and open flame. Keep in a cool, well-ventilated place. Keep away from food, drink and animal feeding stuffs. Store away from incompatible materials.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### ACGIH

#### Components

Components	Type	Value
Benzene (71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm

Components	Type	Value
Ethylbenzene (100-41-4)	STEL	125 ppm
	TWA	100 ppm
Heptane (142-82-5)	STEL	500 ppm
	TWA	400 ppm
Hydrogen sulfide (7783-06-4)	STEL	5 ppm
	TWA	1 ppm
Methylcyclohexane (108-87-2)	STEL	500 ppm
	TWA	400 ppm
n-Hexane (110-54-3)	TWA	50 ppm
Octane (111-65-9)	TWA	300 ppm
Pentane (109-66-0)	TWA	600 ppm
Toluene (108-88-3)	TWA	20 ppm
Xylene (1330-20-7)	STEL	150 ppm
	TWA	100 ppm

### U.S. - OSHA

Components	Type	Value
Benzene (71-43-2)	Ceiling	25 ppm
	STEL	5 ppm
	TWA	1 ppm
Ethylbenzene (100-41-4)	PEL	435 mg/m3
		100 ppm
	STEL	125 ppm
	TWA	545 mg/m3
Heptane (142-82-5)		100 ppm
		435 mg/m3
	PEL	2000 mg/m3
	STEL	500 ppm
Hydrogen sulfide (7783-06-4)		2000 mg/m3
		1600 mg/m3
	TWA	400 ppm
	Ceiling	20 ppm
Methylcyclohexane (108-87-2)	STEL	21 mg/m3
		15 ppm
	TWA	10 ppm
		14 mg/m3
n-Hexane (110-54-3)	PEL	500 ppm
		2000 mg/m3
	TWA	400 ppm
Octane (111-65-9)		1600 mg/m3
	PEL	1800 mg/m3
		500 ppm
	STEL	50 ppm
Pentane (109-66-0)		500 ppm
		2350 mg/m3
	STEL	375 ppm
	TWA	1800 mg/m3
Toluene (108-88-3)		300 ppm
		300 ppm
	PEL	1450 mg/m3
	STEL	1000 ppm
		2950 mg/m3
		2250 mg/m3
	STEL	750 ppm
	TWA	600 ppm
		1800 mg/m3
	Ceiling	300 ppm
	STEL	150 ppm
	TWA	560 mg/m3
		200 ppm

Components	Type	Value
Xylene (1330-20-7)	PEL	375 mg/m3
		100 ppm
	STEL	435 mg/m3
		150 ppm
	TWA	655 mg/m3
		100 ppm
		435 mg/m3

**Canada - Alberta**

Components	Type	Value
Benzene (71-43-2)	STEL	8 mg/m3
		2.5 ppm
	TWA	1.6 mg/m3
Ethylbenzene (100-41-4)	STEL	0.5 ppm
		543 mg/m3
	TWA	125 ppm
Heptane (142-82-5)	STEL	434 mg/m3
		100 ppm
	TWA	2050 mg/m3
Hydrogen sulfide (7783-06-4)	Ceiling	500 ppm
		1640 mg/m3
	TWA	400 ppm
Methylcyclohexane (108-87-2)	STEL	15 ppm
		21 mg/m3
	TWA	10 ppm
n-Hexane (110-54-3)	STEL	14 mg/m3
		2050 mg/m3
	TWA	500 ppm
Octane (111-65-9)	TWA	400 ppm
		1640 mg/m3
	TWA	50 ppm
Pentane (109-66-0)	TWA	176 mg/m3
		300 ppm
	TWA	1400 mg/m3
Toluene (108-88-3)	TWA	1770 mg/m3
		600 ppm
	TWA	50 ppm
		188 mg/m3

**Canada - British Columbia**

Components	Type	Value
Benzene (71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm
Ethylbenzene (100-41-4)	STEL	125 ppm
	TWA	100 ppm
Heptane (142-82-5)	STEL	500 ppm
	TWA	400 ppm
Hydrogen sulfide (7783-06-4)	Ceiling	10 ppm
Methylcyclohexane (108-87-2)	TWA	400 ppm
n-Hexane (110-54-3)	TWA	20 ppm
Octane (111-65-9)	TWA	300 ppm
Pentane (109-66-0)	TWA	600 ppm
Toluene (108-88-3)	TWA	20 ppm
Xylene (1330-20-7)	STEL	150 ppm
	TWA	100 ppm

**Additional exposure data**

OSHA: The acceptable max. peak above the ceiling concentration for an 8-hour shift is: 50 ppm. The acceptable duration of the peak above the ceiling concentration is: 10 minutes once, only if no other measureable exposure occurs

**Engineering controls**

Explosion proof exhaust ventilation should be used. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Provide adequate ventilation and minimize the risk of inhalation of vapors. Provide easy access to water supply and eye wash facilities.

## Personal protective equipment

<b>Eye / face protection</b>	Wear goggles/face shield.
<b>Skin protection</b>	Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Protection suit must be worn. Anti-static and flame-retardant protective clothing is recommended. Suitable gloves can be recommended by the glove supplier.
<b>Respiratory protection</b>	Wear approved respiratory protection when working with this material unless ventilation is adequate to keep airborne concentrations below recommended exposure standards. Note: If any of the applicable hydrogen sulfide standards are likely to be exceeded, positive supplied-air respiratory protection must be used. The ACGIH TWA for hydrogen sulfide is 10 ppm. The OSHA STEL is 15 ppm.
<b>General hygiene considerations</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately. Observe any medical surveillance requirements.

## 9. Physical & Chemical Properties

<b>Appearance</b>	Thick, flammable, dark yellow to brown or green-black liquid.
<b>Color</b>	Black. Brown. Green. Yellow ( Dark )
<b>Odor</b>	Petroleum.
<b>Odor threshold</b>	Not available.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>pH</b>	Not applicable.
<b>Melting point</b>	Not available.
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	86 - 1000 °F (30 - 537.8 °C)
<b>Flash point</b>	-40.3 - 149.3 °F (-40.15 - 65.15 °C) Cleveland Closed Cup
<b>Evaporation rate</b>	10 - 11
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	15 %
<b>Flammability limits in air, lower, % by volume</b>	0.4 %
<b>Vapor pressure</b>	0 - 96.5 kPa (20°C/68°F)
<b>Vapor density</b>	4.4
<b>Specific gravity</b>	0.63 - 1.1 (15.6°C/60°F)
<b>Solubility (water)</b>	Slightly.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	500 °F (260 °C)
<b>Decomposition temperature</b>	Not available.
<b>VOC</b>	100 %
<b>Bulk density</b>	Not applicable.
<b>Percent volatile</b>	Not available.

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Stable at normal conditions.
<b>Conditions to avoid</b>	Heat, sparks, flames, elevated temperatures. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong acids. Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

#### Components

Ethylbenzene (100-41-4)

Methylcyclohexane (108-87-2)

Toluene (108-88-3)

Pentane (109-66-0)

Octane (111-65-9)

Xylene (1330-20-7)

Heptane (142-82-5)

Benzene (71-43-2)

#### Test Results

Acute Dermal LD50 Rabbit: > 5000 mg/kg

Acute Oral LD50 Rat: 3500 mg/kg

Acute Inhalation LC25-R Rabbit: 7300 mg/l

Acute Oral LD50 Rat: 2600 - 7500 mg/kg

Acute Inhalation LC50 Rat: 364 mg/l 4 Hours

Acute Inhalation LC50 Rat: 118 mg/l 4 Hours

Acute Oral LD50 Rat: 4300 mg/kg

Acute Inhalation LC50 Rat: 103 mg/l 4 Hours

Acute Inhalation LC50 Mouse: 9980 mg/l

Acute Inhalation LC50 Rat: 10000 mg/l 7 Hours

Acute Oral LD50 Mouse: 4700 mg/kg

Acute Oral LD50 Rat: 3306 mg/kg

Acute Other LD50 Mouse: 340 mg/kg

Acute Other LD50 Mouse: 0.000001 ml/kg

Acute Other LD50 Rat: 2.89 mg/kg

#### Toxicological information

This product may contain detectable but varying quantities of the naturally occurring radioactive substance radon 222. The amount in the gas itself is not hazardous, but since radon rapidly decays ( $t_{1/2} = 3.82$  days) to form other radioactive elements including lead 210, polonium 210, and bismuth 210, equipment may be radioactive. The radon daughters are solids and therefore may attach to dust particles or form films and sludges in equipment. Inhalation, ingestion or skin contact with radon daughters can lead to the deposition of radioactive material in the lungs, bone, blood forming organs, intestinal tract, kidney and colon. Occupational exposure to radon and radon daughters has been associated with an increased risk of lung cancer in underground uranium miners. Follow the special precautions listed in handling and storage section of this document (see section 7).

#### Acute effects

Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. May irritate and cause stomach pain, vomiting, diarrhea and nausea.

#### Local effects

Irritating to eyes. Irritating to skin.

#### Sensitization

May cause eczema-like skin disorders (dermatitis). May cause photosensitization, evidenced by repeated occurrence of a dermatitic rash on exposure to sunlight.

#### Chronic effects

Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. May cause damage to the liver. Contains benzene. Human epidemiology studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-producing system and serious blood disorders, including leukemia. Animal tests suggest that prolonged and/or repeated overexposure to benzene may damage the embryo/fetus. The relevance of these animal studies to humans has not been fully established. Contains n-hexane. Prolonged and/or repeated exposures may cause damage to the peripheral nervous system (e.g. fingers, feet, arms etc.).

#### Carcinogenicity

May cause cancer. Contains benzene, a known human carcinogen, which may cause leukemia.

##### ACGIH Carcinogens

Benzene (CAS 71-43-2)

Ethylbenzene (CAS 100-41-4)

Toluene (CAS 108-88-3)

Xylene (CAS 1330-20-7)

A1 Confirmed human carcinogen.

A3 Confirmed animal carcinogen with unknown relevance to humans.

A4 Not classifiable as a human carcinogen.

A4 Not classifiable as a human carcinogen.

##### IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2)

Crude oil (CAS 8002-05-9)

Ethylbenzene (CAS 100-41-4)

Toluene (CAS 108-88-3)

1 Carcinogenic to humans.

3 Not classifiable as to carcinogenicity to humans.

2B Possibly carcinogenic to humans.

3 Not classifiable as to carcinogenicity to humans.

Xylene (CAS 1330-20-7)

3 Not classifiable as to carcinogenicity to humans.

**US NTP Report on Carcinogens: Known carcinogen**

Benzene (CAS 71-43-2)

Known carcinogen.

**US OSHA Specifically Regulated Substances: Cancer hazard**

Benzene (CAS 71-43-2)

Cancer hazard.

**Epidemiology**

Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.

**Mutagenicity**

Knowledge about mutagenicity is incomplete.

**Reproductive effects**

Knowledge about reproductive effects is incomplete.

**Further information**

Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia. Components of the product may be absorbed into the body through the skin.

**12. Ecological Information**

**Ecotoxicological data**

**Product**

**Test Results**

Crude oil (Sour)

LC50 Fish: 22.29 mg/l 96 hours estimated

**Components**

**Test Results**

Ethylbenzene (100-41-4)

EC50 Water flea (Daphnia magna): 1.37 - 4.4 mg/l 48 hours  
LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 4.2 mg/l 96 hours

Methylcyclohexane (108-87-2)

LC50 Striped bass (Morone saxatilis): 5.8 mg/l 96 hours

Toluene (108-88-3)

EC50 Water flea (Daphnia magna): 5.46 - 9.83 mg/l 48 hours  
LC50 Coho salmon,silver salmon (Oncorhynchus kisutch): 5.5 mg/l 96 hours

Pentane (109-66-0)

EC50 Daphnia: 2.3 mg/l 48 Hours

n-Hexane (110-54-3)

LC50 Fish: 3.1 mg/l 96 Hours

Heptane (142-82-5)

LC50 Fathead minnow (Pimephales promelas): 2.101 - 2.981 mg/l 96 hours

Benzene (71-43-2)

LC50 Mozambique tilapia (Tilapia mossambica): 375 mg/l 96 hours

Crude oil (8002-05-9)

EC50 Water flea (Daphnia magna): 8.76 - 15.6 mg/l 48 hours  
EC50 Water flea (Daphnia magna): 8.76 - 15.6 mg/l 48 Hours  
LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 5 mg/l 96 Hours

LC50 Cutthroat trout (Oncorhynchus clarki): 2.1 - 4.3 mg/l 96 hours

**Ecotoxicity**

Oil spills are generally hazardous to the environment.

**Environmental effects**

The product contains volatile organic compounds which have a photochemical ozone creation potential.

**Aquatic toxicity**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Persistence and degradability**

The degradability of the product has not been stated. The product meets the definition of the International Oil Pollution Compensation (IPOC) Fund as being a "persistent" oil.

**Bioaccumulation / Accumulation**

No data available on bioaccumulation.

**Partition coefficient (n-octanol/water)**

Not available.

**Mobility in environmental media**

The product is insoluble in water. It will spread on the water surface while some of the components will eventually sediment in water systems. The volatile components of the product will spread in the atmosphere.

**13. Disposal Considerations**

**Waste codes**

D001: Waste Flammable material with a flash point <140 °F

**Disposal instructions**

Dispose in accordance with all applicable regulations. This material and/or its container must be disposed of as hazardous waste.

**Waste from residues / unused products**

Follow all applicable MARPOL requirements for disposal of waste.

**Contaminated packaging**

Dispose of in accordance with local regulations.

## 14. Transport Information

### DOT

**Basic shipping requirements:**

UN number	UN1267
Proper shipping name	Petroleum crude oil
Hazard class	3
Packing group	I
Special precautions	This product is being carried under the scope of MARPOL Annex 1.
Labels required	3
<b>Additional information:</b>	
Special provisions	144, T11, TP1, TP8
ERG number	128

### IATA

**Basic shipping requirements:**

UN number	1267
Proper shipping name	Petroleum crude oil
Hazard class	3
Packing group	I
Special precautions	This product is being carried under the scope of MARPOL Annex 1.

### IMDG

**Basic shipping requirements:**

UN number	1267
Proper shipping name	PETROLEUM CRUDE OIL
Hazard class	3
Packing group	I
EmS No.	F-E, S-E
Special precautions	This product is being carried under the scope of MARPOL Annex 1.

### TDG

**Basic shipping requirements:**

Proper shipping name	PETROLEUM CRUDE OIL
Hazard class	3
UN number	UN1267
Packing group	I

### General

This product is being carried under the scope of MARPOL Annex 1.



DOT



IATA



IMDG



TDG

## 15. Regulatory Information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

#### US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

Hydrogen sulfide (CAS 7783-06-4) 100 LBS

#### US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

Hydrogen sulfide (CAS 7783-06-4) 500 LBS

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Benzene (CAS 71-43-2) 0.1 %

Crude oil (CAS 8002-05-9) 0.1 % N590 Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.

Ethylbenzene (CAS 100-41-4) 0.1 %

n-Hexane (CAS 110-54-3) 1.0 %

Toluene (CAS 108-88-3) 1.0 %

Xylene (CAS 1330-20-7) 1.0 %

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Benzene (CAS 71-43-2) Listed.

Crude oil (CAS 8002-05-9) N590 Listed.

Ethylbenzene (CAS 100-41-4) Listed.

n-Hexane (CAS 110-54-3) Listed.

Toluene (CAS 108-88-3) Listed.

Xylene (CAS 1330-20-7) Listed.

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold

Crude oil (CAS 8002-05-9) 100 LBS N590

#### US TSCA Section 12(b) Export Notification: Export Notification requirement/De minimis concentration

Heptane (CAS 142-82-5) 1.0 % One-Time Export Notification only.

Pentane (CAS 109-66-0) 1.0 % One-Time Export Notification only.

### CERCLA (Superfund) reportable quantity (lbs)

Crude oil 100

n-Hexane 100

Pentane 100

Heptane 100

Octane 100

Benzene 10

Methylcyclohexane 100

Ethylbenzene 100

Xylene 1000

Toluene 100

Hydrogen sulfide 100

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**  
Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

**Section 302 extremely hazardous substance** No

**Section 311 hazardous chemical** No

**Drug Enforcement Agency (DEA)** Not controlled

**Canadian regulations** This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

**WHMIS status** Controlled

**WHMIS classification** B2 - Flammable/Combustible

**WHMIS labeling**



**State regulations**

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - California Hazardous Substances (Director's): Listed substance**

Benzene (CAS 71-43-2)	Listed.
Crude oil (CAS 8002-05-9)	Listed.
Ethylbenzene (CAS 100-41-4)	Listed.
Heptane (CAS 142-82-5)	Listed.
Hydrogen sulfide (CAS 7783-06-4)	Listed.
Methylcyclohexane (CAS 108-87-2)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
Octane (CAS 111-65-9)	Listed.
Pentane (CAS 109-66-0)	Listed.
Toluene (CAS 108-88-3)	Listed.
Xylene (CAS 1330-20-7)	Listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Benzene (CAS 71-43-2)	Listed.
Ethylbenzene (CAS 100-41-4)	Listed.
Toluene (CAS 108-88-3)	Listed.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Benzene (CAS 71-43-2)	Listed: February 27, 1987 Carcinogenic.
Ethylbenzene (CAS 100-41-4)	Listed: June 11, 2004 Carcinogenic.

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Developmental toxin.
Toluene (CAS 108-88-3)	Listed: January 1, 1991 Developmental toxin.

**US - California Proposition 65 - CRT: Listed date/Female reproductive toxin**

Toluene (CAS 108-88-3)	Listed: August 7, 2009 Female reproductive toxin.
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**US - California Proposition 65 - CRT: Listed date/Male reproductive toxin**

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Male reproductive toxin.
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**US - Massachusetts RTK - Substance: Listed substance**

Benzene (CAS 71-43-2)	Listed.
Crude oil (CAS 8002-05-9)	Listed.
Ethylbenzene (CAS 100-41-4)	Listed.
Heptane (CAS 142-82-5)	Listed.
Hydrogen sulfide (CAS 7783-06-4)	Listed.
Methylcyclohexane (CAS 108-87-2)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
Octane (CAS 111-65-9)	Listed.
Pentane (CAS 109-66-0)	Listed.
Toluene (CAS 108-88-3)	Listed.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

Benzene (CAS 71-43-2)	500 LBS
Crude oil (CAS 8002-05-9)	500 LBS
Ethylbenzene (CAS 100-41-4)	500 LBS
Hydrogen sulfide (CAS 7783-06-4)	500 LBS
n-Hexane (CAS 110-54-3)	500 LBS
Pentane (CAS 109-66-0)	500 LBS
Toluene (CAS 108-88-3)	500 LBS
Xylene (CAS 1330-20-7)	500 LBS

**US - New Jersey RTK - Substances: Listed substance**

Benzene (CAS 71-43-2)	Listed.
Crude oil (CAS 8002-05-9)	Listed.
Heptane (CAS 142-82-5)	Listed.
Xylene (CAS 1330-20-7)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

Benzene (CAS 71-43-2)	Listed.
Crude oil (CAS 8002-05-9)	Listed.
Ethylbenzene (CAS 100-41-4)	Listed.
Heptane (CAS 142-82-5)	Listed.
Hydrogen sulfide (CAS 7783-06-4)	Listed.
Methylcyclohexane (CAS 108-87-2)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
Octane (CAS 111-65-9)	Listed.
Pentane (CAS 109-66-0)	Listed.
Toluene (CAS 108-88-3)	Listed.

Xylene (CAS 1330-20-7)  
**US - Pennsylvania RTK - Hazardous Substances: Special hazard**  
Benzene (CAS 71-43-2)

Listed.  
Special hazard.

## 16. Other Information

### HMIS® ratings

Health: 2\*  
Flammability: 3  
Physical hazard: 0

### NFPA ratings

Health: 2  
Flammability: 3  
Instability: 0

### Disclaimer

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

### Issue date

06-02-2010