MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**Crude oil (Sour)**
Version #	01
Revision date	06-02-2010
Product use	Feed Stock.
Manufacturer/Supplier	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
Emergency	Emergency Chemtrec: Within the USA (800) 424-9300 Outside the USA (703) 527-3887 Devon Canada Emergency Phone: (403) 232-7100

2. Hazards Identification

Physical state	Liquid.
Appearance	Thick, flammable, dark yellow to brown or green-black liquid.
Emergency overview	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	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
		545 mg/m3
	TWA	100 ppm
		435 mg/m3
Heptane (142-82-5)	PEL	2000 mg/m3
		500 ppm
	STEL	500 ppm
		2000 mg/m3
	TWA	1600 mg/m3
		400 ppm
Hydrogen sulfide (7783-06-4)	Ceiling	20 ppm
	STEL	21 mg/m3
		15 ppm
	TWA	10 ppm
		14 mg/m3
Methylcyclohexane (108-87-2)	PEL	500 ppm
		2000 mg/m3
	TWA	400 ppm
		1600 mg/m3
n-Hexane (110-54-3)	PEL	1800 mg/m3
		500 ppm
	TWA	180 mg/m3
		50 ppm
Octane (111-65-9)	PEL	500 ppm
		2350 mg/m3
	STEL	375 ppm
		1800 mg/m3
	TWA	300 ppm
		1450 mg/m3
Pentane (109-66-0)	PEL	1000 ppm
		2950 mg/m3
	STEL	2250 mg/m3
		750 ppm
	TWA	600 ppm
		1800 mg/m3
Toluene (108-88-3)	Ceiling	300 ppm
	STEL	150 ppm
		560 mg/m3
	TWA	200 ppm

Components	Type	Value
		375 mg/m3
Xylene (1330-20-7)	PEL	100 ppm
		435 mg/m3
	STEL	150 ppm
		655 mg/m3
	TWA	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
		0.5 ppm
Ethylbenzene (100-41-4)	STEL	543 mg/m3
		125 ppm
	TWA	434 mg/m3
		100 ppm
Heptane (142-82-5)	STEL	2050 mg/m3
		500 ppm
	TWA	1640 mg/m3
		400 ppm
Hydrogen sulfide (7783-06-4)	Ceiling	15 ppm
		21 mg/m3
	TWA	10 ppm
		14 mg/m3
Methylcyclohexane (108-87-2)	STEL	2050 mg/m3
		500 ppm
	TWA	400 ppm
		1640 mg/m3
n-Hexane (110-54-3)	TWA	50 ppm
		176 mg/m3
Octane (111-65-9)	TWA	300 ppm
		1400 mg/m3
Pentane (109-66-0)	TWA	1770 mg/m3
		600 ppm
Toluene (108-88-3)	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

Eye / face protection	Wear goggles/face shield.
Skin protection	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.
Respiratory protection	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.
General hygiene considerations	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

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

10. Chemical Stability & Reactivity Information

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

11. Toxicological Information

Toxicological data

Components	Test Results
Ethylbenzene (100-41-4)	Acute Dermal LD50 Rabbit: > 5000 mg/kg
	Acute Oral LD50 Rat: 3500 mg/kg
Methylcyclohexane (108-87-2)	Acute Inhalation LC25-R Rabbit: 7300 mg/l
Toluene (108-88-3)	Acute Oral LD50 Rat: 2600 - 7500 mg/kg
Pentane (109-66-0)	Acute Inhalation LC50 Rat: 364 mg/l 4 Hours
Octane (111-65-9)	Acute Inhalation LC50 Rat: 118 mg/l 4 Hours
Xylene (1330-20-7)	Acute Oral LD50 Rat: 4300 mg/kg
Heptane (142-82-5)	Acute Inhalation LC50 Rat: 103 mg/l 4 Hours
Benzene (71-43-2)	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 (t1/2 = 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)	A1 Confirmed human carcinogen.
Ethylbenzene (CAS 100-41-4)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Toluene (CAS 108-88-3)	A4 Not classifiable as a human carcinogen.
Xylene (CAS 1330-20-7)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2)	1 Carcinogenic to humans.
Crude oil (CAS 8002-05-9)	3 Not classifiable as to carcinogenicity to humans.
Ethylbenzene (CAS 100-41-4)	2B Possibly carcinogenic to humans.
Toluene (CAS 108-88-3)	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
	LC50 Fish: 3.1 mg/l 96 Hours
n-Hexane (110-54-3)	LC50 Fathead minnow (Pimephales promelas): 2.101 - 2.981 mg/l 96 hours
Heptane (142-82-5)	LC50 Mozambique tilapia (Tilapia mossambica): 375 mg/l 96 hours
Benzene (71-43-2)	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
Crude oil (8002-05-9)	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

Additional information:

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.

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

Benzene (CAS 71-43-2)	Listed: December 26, 1997 Male reproductive toxin.

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) Listed.

US - Pennsylvania RTK - Hazardous Substances: Special hazard

Benzene (CAS 71-43-2) 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