

# SAFETY DATA SHEET

Crude Oil, Sour

  
HOLLYFRONTIER

## Section 1. Identification

**Product name** : Crude Oil, Sour  
**Synonyms** : Sour Crude Oil

### Relevant identified uses of the substance or mixture and uses advised against

**Product use** : Feedstock

**Manufacturer** : HollyFrontier Refining & Marketing LLC  
2828 North Harwood  
Suite 1300  
Dallas, Texas 75201  
USA  
Customer Service: (888) 286-8836

**Emergency telephone number** : CHEMTREC® (800) 424-9300  
CCN 201319

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 2  
EYE IRRITATION - Category 2A  
CARCINOGENICITY - Category 1B  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, liver, spleen and thymus) (oral) - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, liver, spleen and thymus) (dermal) - Category 2  
ASPIRATION HAZARD - Category 1

### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : Highly flammable liquid and vapor.  
Causes serious eye irritation.  
May cause cancer.  
May be fatal if swallowed and enters airways.  
May cause drowsiness or dizziness.  
May cause damage to organs through prolonged or repeated exposure if swallowed. (blood system, liver, spleen, thymus)  
May cause damage to organs through prolonged or repeated exposure in contact with skin. (blood system, liver, spleen, thymus)

### Precautionary statements

**Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling. Product may release hydrogen sulfide: a specific assessment of inhalation risks from

the presence of hydrogen sulfide in tank headspaces, confined spaces, product residue, tank waste and waste water and unintentional releases should be made to help determine controls appropriate to local circumstances.

- Response** : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store in a well-ventilated place. Keep cool.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin and clothing. Wash thoroughly after handling.
- Hazards not otherwise classified** : Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor may cause flash fire or explosion. Prolonged or repeated contact may dry skin and cause irritation.

### Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

#### CAS number/other identifiers

**CAS number** : Not applicable.

**Product code** : Not available.

Ingredient name	%	CAS number
Crude oil	100	8002-05-9
benzene	1 - 5	71-43-2
naphthalene	0 - 1	91-20-3
hydrogen sulfide	<1	7783-06-4
Total Sulfur	≥ 0.5	

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

### Section 4. First aid measures

#### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention. Continue to rinse for at least 15 minutes.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

- Ingestion** : Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Mist/high concentrations: Inhalation may cause irritation to the nose, throat, upper respiratory tract and lungs.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

#### Over-exposure signs/symptoms

- Eye contact** : pain or irritation; watering; redness
- Inhalation** : nausea or vomiting; headache; drowsiness/fatigue; dizziness/vertigo; unconsciousness; respiratory tract irritation; coughing
- Skin contact** : irritation; dryness; cracking
- Ingestion** : nausea or vomiting

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents.
- Specific treatments** : No specific treatment.
- Protection of medical responders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

## **Section 5. Fire-fighting measures**

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

### Specific hazards arising from the chemical

- : Highly flammable liquid and vapor. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static accumulation may be significantly increased by the presence of small quantities of water or other contaminants. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, waterways, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Restrict flow velocity according to API 2003 (2008), NFPA 77 (2007), and Laurence Britton, "Avoiding Static Ignition Hazards in Chemical Operations". To reduce potential for static discharge, ensure that all equipment is properly grounded and bonded and meets appropriate electrical classification requirements. High pressure skin injections are serious medical emergencies. Injury will not appear serious at first. Within a few hours, tissue will become swollen, discolored and extremely painful.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits		
Crude oil	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 400 ppm 8 hours. TWA: 1600 mg/m <sup>3</sup> 8 hours.	<b>ACGIH TLV (United States).</b> TWA: 5 mg/m <sup>3</sup>	<b>NIOSH REL (United States, 1/2013).</b> TWA: 350 mg/m <sup>3</sup> 10 hours. CEIL: 1800 mg/m <sup>3</sup> 15 minutes.
benzene	<b>OSHA PEL 1989 (United States, 3/1989).</b>  TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes. <b>OSHA PEL Z2 (United States, 11/2006).</b> TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes. <b>OSHA PEL (United States, 6/2010).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.	<b>ACGIH TLV (United States, 1/2010).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Mist <b>ACGIH TLV (United States, 3/2012). Absorbed through skin.</b> TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m <sup>3</sup> 8 hours. STEL: 2.5 ppm 15 minutes.  STEL: 8 mg/m <sup>3</sup> 15 minutes.	<b>NIOSH REL (United States, 1/2013).</b>  TWA: 0.1 ppm 10 hours. STEL: 1 ppm 15 minutes.
naphthalene	<b>OSHA PEL 1989 (United States, 3/1989).</b>  STEL: 15 ppm 15 minutes. STEL: 75 mg/m <sup>3</sup> 15 minutes. TWA: 10 ppm 8 hours. TWA: 50 mg/m <sup>3</sup> 8 hours. <b>OSHA PEL (United States, 6/2010).</b> TWA: 10 ppm 8 hours. TWA: 50 mg/m <sup>3</sup> 8 hours.	<b>ACGIH TLV (United States, 3/2012). Absorbed through skin.</b> TWA: 10 ppm 8 hours. TWA: 52 mg/m <sup>3</sup> 8 hours. STEL: 15 ppm 15 minutes. STEL: 79 mg/m <sup>3</sup> 15 minutes.	<b>NIOSH REL (United States, 1/2013).</b>  TWA: 10 ppm 10 hours. TWA: 50 mg/m <sup>3</sup> 10 hours. STEL: 15 ppm 15 minutes. STEL: 75 mg/m <sup>3</sup> 15 minutes.
hydrogen sulfide	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 10 ppm 8 hours. TWA: 14 mg/m <sup>3</sup> 8 hours. STEL: 15 ppm 15 minutes. STEL: 21 mg/m <sup>3</sup> 15 minutes. <b>OSHA PEL Z2 (United States, 11/2006).</b> CEIL: 20 ppm AMP: 50 ppm 10 minutes.	<b>ACGIH TLV (United States, 3/2012).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.	<b>NIOSH REL (United States, 1/2013).</b> CEIL: 10 ppm 10 minutes. CEIL: 15 mg/m <sup>3</sup> 10 minutes.

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures



- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.
- Color** : Black to Amber.
- Odor** : Petroleum, Rotten eggs.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : >35°C (>95°F)
- Flash point** : <-28.9°C (<-20°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Lower: 0.8%  
Upper: 8%
- Vapor pressure** : 1 - 800 mm Hg at 37.8°C (100 F)
- Vapor density** : 2 to 5 [Air = 1]
- Specific gravity** : 0.7 to 1 [15.5°C (60°F)]
- Solubility** : Negligible
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : >260°C (>500°F)
- Decomposition temperature** : Not available.
- Viscosity** : Kinematic (40°C (104°F)): >0.0042 cm<sup>2</sup>/s (>0.42 cSt)
- Molecular weight** : Not applicable.

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Incompatible materials** : Reactive or incompatible with the following materials:  
oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Crude oil	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Crude oil	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-

#### Carcinogenicity

Product/ingredient name	OSHA	IARC	NTP
Crude oil	-	3	-
benzene	+	1	Known to be a human carcinogen.
naphthalene	-	2B	Reasonably anticipated to be a human carcinogen.

#### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Crude oil	Category 3	Not applicable.	Narcotic effects

#### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Crude oil	Category 2	Oral	blood system, liver, spleen and thymus
		Skin	blood system, liver, spleen and thymus

#### Aspiration hazard

Name	Result
Crude oil	ASPIRATION HAZARD - Category 1

- Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation.

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Long term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Potential chronic health effects**

**General** : May cause damage to organs through prolonged or repeated exposure in contact with skin or if swallowed. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

**Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

**Numerical measures of toxicity****Acute toxicity estimates**

Route	ATE value
Oral	32240 mg/kg

**Section 12. Ecological information****Toxicity**

Product/ingredient name	Result	Species	Exposure
Crude oil	Acute EC50 0.26 mg/l Marine water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 >30 ml/L Marine water	Aquatic plants - Hydrilla verticillata	96 hours
	Acute LC50 0.35 ppm Marine water	Crustaceans - Octopus pallidus - Newly or recently hatched	48 hours
benzene	Acute LC50 7.46 µg/l Marine water	Fish - Oncorhynchus tshawytscha	96 hours
	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
naphthalene	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	Acute EC50 1600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2350 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 213 µg/l Fresh water	Fish - Melanotaenia fluviatilis - Larvae	96 hours

**Conclusion/Summary** : Toxic to aquatic life with long lasting effects.



**Persistence and degradability**

Product/ingredient name	Test	Result	Dose	Inoculum
benzene	301C Ready Biodegradability - Modified MITI Test (I)	100 % - 14 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
benzene	-	-	Readily

**Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Crude oil	2 to 6	-	high
benzene	2.13	11	low
naphthalene	3.4	36.5 to 168	low

**Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.

**Section 13. Disposal considerations**



















**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**United States - RCRA Toxic hazardous waste "U" List**

Ingredient	CAS #	Status	Reference number
Benzene (I,T)	71-43-2	Listed	U019

**Section 14. Transport information**

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
<b>UN number</b>	UN3494	UN3494	UN3494	UN3494	UN3494	UN3494
<b>UN proper shipping name</b>	Petroleum sour crude oil, flammable, toxic. Marine pollutant (Crude oil) RQ (benzene, naphthalene)	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC. Marine pollutant (Crude oil)	PETROLEO CRUDO ACIDO, INFLAMABLE, TOXICO	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC. Marine pollutant (Crude oil)	Petroleum sour crude oil, flammable, toxic

<b>Transport hazard class(es)</b>	3 (6.1)   	3 (6.1)   	3 (6.1)   	3 (6.1)   	3 (6.1)   	3 (6.1)   
<b>Packing group</b>	II	II	II	II	II	II
<b>Environmental hazards</b>	No.	No.	No.	No.	Yes.	No.
<b>Additional information</b>	<p>This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.</p> <p><b><u>Reportable quantity</u></b> 333.33 lbs / 151.33 kg [47.033 gal / 178.04 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> <p><b><u>Limited quantity</u></b> Yes.</p> <p><b><u>Packaging instruction</u></b> <b>Passenger aircraft</b> Quantity</p>	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.26-2.36 (Class 6), 2.7 (Marine pollutant mark).</p> <p>The marine pollutant mark is not required when transported by road or rail.</p> <p><b><u>Explosive Limit and Limited Quantity Index</u></b> 1</p> <p><b><u>Passenger Carrying Ship Index</u></b> Forbidden</p> <p><b><u>Passenger Carrying Road or Rail Index</u></b> 1</p> <p><b><u>Special provisions</u></b> 150</p>	<p><b><u>Special provisions</u></b> 343</p>	<p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p><b><u>Hazard identification number</u></b> 336</p> <p><b><u>Limited quantity</u></b> 1 L</p> <p><b><u>Special provisions</u></b> 343</p> <p><b><u>Tunnel code</u></b> (D/E)</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p><b><u>Emergency schedules (EmS)</u></b> F-E, S-E</p> <p><b><u>Special provisions</u></b> 343</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p><b><u>Passenger and Cargo Aircraft</u></b> Quantity limitation: 1 L Packaging instructions: 352</p> <p><b><u>Cargo Aircraft Only</u></b>Quantity limitation: 60 L Packaging instructions: 364</p> <p><b><u>Limited Quantities - Passenger Aircraft</u></b> Quantity limitation: 1 L Packaging instructions: Y341</p> <p><b><u>Special provisions</u></b> A166</p>

	limitation: 1 L  <b>Cargo aircraft</b> Quantity limitation: 60 L  <u><b>Special provisions</b></u> 343, IB2, T7, TP2					
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**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) PAIR:** naphthalene  
**United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 307:** benzene; naphthalene  
**Clean Water Act (CWA) 311:** benzene; naphthalene; hydrogen sulfide

**Clean Air Act Section 112** : Listed  
**(b) Hazardous Air Pollutants (HAPs)**

### SARA 302/304

#### Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
hydrogen sulfide	0 - 1	Yes.	500	-	100	-

**SARA 304 RQ** : 20000 lbs / 9080 kg [2822 gal / 10682.4 L]

### SARA 311/312

**Classification** : Fire hazard  
 Immediate (acute) health hazard  
 Delayed (chronic) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Crude oil	100	Yes.	No.	No.	Yes.	Yes.
benzene	1 - 5	Yes.	No.	No.	Yes.	Yes.
naphthalene	0 - 1	Yes.	No.	No.	Yes.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	benzene	71-43-2	1 - 5
	naphthalene	91-20-3	0 - 1
<b>Supplier notification</b>	benzene	71-43-2	1 - 5
	naphthalene	91-20-3	0 - 1

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

**Massachusetts** : The following components are listed: PETROLEUM CRUDE; BENZENE

- New York** : The following components are listed: Benzene; Naphthalene
- New Jersey** : The following components are listed: PETROLEUM DISTILLATES; CRUDE OIL (PETROLEUM); BENZENE; NAPHTHALENE; MOTH FLAKES
- Pennsylvania** : The following components are listed: PETROLEUM; BENZENE; NAPHTHALENE
- California Prop. 65**

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
naphthalene	Yes.	No.	Yes.	No.

**Canada inventory** : All components are listed or exempted.

#### International regulations

#### International lists

- Australia inventory (AICS):** All components are listed or exempted.
- China inventory (IECSC):** All components are listed or exempted.
- Japan inventory (ENCS):** Not determined.
- Japan inventory (ISHL):** Not determined.
- Korea inventory:** All components are listed or exempted.
- Malaysia Inventory (EHS Register):** Not determined.
- New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.
- Philippines inventory (PICCS):** All components are listed or exempted.
- Taiwan Chemical Substances Inventory (TCSI):** Not determined.
- Turkey inventory:** Not determined.

## Section 16. Other information

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



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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#### **Key to abbreviations**

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- UN = United Nations

▣ Indicates information that has changed from previously issued version.

#### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named manufacturer, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.