

## Section 1. Identification

**GHS product identifier** : Crude Oil, Sour  
**Product code** : 733721  
**Other means of identification** : Crude Oils, Desalted, Sour, Field Crude, Sour Petroleum Crude, Sour Petroleum Oil, Sour Rock Oil, Sour, Sour Crude  
**Product type** : Liquid.

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

**Product use** : Refinery feed  
**Area of application** : Industrial applications.

**Manufacturer** : Validus Energy  
 1530 16th Street Mall Denver,  
 CO 80202  
 Telephone #: 1-877-615-7787  
 www.validus.energy

**Emergency number (with hours of operation)** : Chemtrec: 1-800-424-9300 (24 hours)

## 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** :

H224	FLAMMABLE LIQUIDS - Category 1
H319	EYE IRRITATION - Category 2A
H340	GERM CELL MUTAGENICITY - Category 1
H350	CARCINOGENICITY - Category 1A
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
H304	ASPIRATION HAZARD - Category 1

GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

## Section 2. Hazards identification

<b>Hazard statements</b>	: H224 - Extremely flammable liquid and vapor. H304 - May be fatal if swallowed and enters airways. H319 - Causes serious eye irritation. H336 - May cause drowsiness or dizziness. H340 - May cause genetic defects. H350 - May cause cancer. H373 - May cause damage to organs through prolonged or repeated exposure. (blood system, liver, spleen, thymus) May contain or release hydrogen sulfide gas.
<b><u>Precautionary statements</u></b>	
<b>Prevention</b>	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P271 - Use only outdoors or in a well-ventilated area. P260 - Do not breathe vapor. P264 - Wash thoroughly after handling.
<b>Response</b>	: P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P340, P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
<b>Storage</b>	: P405 - Store locked up. P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
<b>Disposal</b>	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Supplemental label elements</b>	: 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.
<b>Hazards not otherwise classified</b>	: 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

<b>Substance/mixture</b>	: Substance
<b>Other means of identification</b>	: Crude Oils, Desalted, Sour, Field Crude, Sour Petroleum Crude, Sour Petroleum Oil, Sour Rock Oil, Sour, Sour Crude
<b><u>CAS number/other identifiers</u></b>	
<b>CAS number</b>	: 8002-05-9

## Section 3. Composition/information on ingredients

Ingredient name	Other names	%	CAS number
Petroleum	-	100	8002-05-9
naphthalene	-	0.9	91-20-3
benzene	-	<1	71-43-2
hydrogen sulfide	-	<1	7783-06-4

Total / sulfur: <1.7 wt%

May contain: Nitrogen, sulfur, organic materials, Heavy metals.

May contain or release hydrogen sulfide gas.

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 and hence require reporting in this section.**

## 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. Continue to rinse for at least 10 minutes. Get medical attention.
- 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. 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. 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.
- 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.

## Section 4. First aid measures

### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

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

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces. 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

- : Extremely flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. 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.

## Section 5. Fire-fighting measures

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
sulfur oxides  
Hydrogen sulfide
- 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).

### 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. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry 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, water courses, 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 8. Exposure controls/personal protection

benzene	<p><b>OSHA PEL (United States, 5/2018).</b> TWA: 10 ppm 8 hours. TWA: 50 mg/m<sup>3</sup> 8 hours.</p> <p><b>ACGIH TLV (United States, 3/2020). 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.</p> <p><b>OSHA PEL Z2 (United States, 2/2013).</b> TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes.</p> <p><b>NIOSH REL (United States, 10/2016).</b> TWA: 0.1 ppm 10 hours. STEL: 1 ppm 15 minutes.</p> <p><b>OSHA PEL (United States, 5/2018).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.</p>
hydrogen sulfide	<p><b>ACGIH TLV (United States, 3/2020).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.</p> <p><b>OSHA PEL Z2 (United States, 2/2013).</b> CEIL: 20 ppm AMP: 50 ppm 10 minutes.</p> <p><b>NIOSH REL (United States, 10/2016).</b> CEIL: 10 ppm 10 minutes. CEIL: 15 mg/m<sup>3</sup> 10 minutes.</p>

### 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

## Section 8. Exposure controls/personal 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.  
Recommended: Nitrile gloves.
- 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** : Amber. / Black.
- Odor** : Petroleum oil / Rotten eggs. / Sulfurous.
- Odor threshold** : Not available.
- pH** : Not applicable.
- Melting point** : Not available.
- Boiling point** : -89 to 538°C (-128.2 to 1000.4°F)
- Flash point** : Closed cup: <-7°C (<19.4°F) [Estimated.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : Lower: 1.1%  
Upper: 6%
- Vapor pressure** : 0.6-10 psia (Reid VP) [37.8 °C (100 °F)]
- Vapor density** : >1 [Air = 1]
- Relative density** : 0.7 to 1.03 [Water = 1 [@ 15.6 °C (60 °F)]]
- Density** : 0.699 to 1.028 g/cm<sup>3</sup>
- Solubility** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : 310°C (590°F)
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Not available.
- Flow time (ISO 2431)** : Not available.



## 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.  
Under normal conditions of storage and use, hazardous polymerization 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  
Reactive or incompatible with the following materials: reducing 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
Petroleum naphthalene	LD50 Oral	Rat	>5000 mg/kg	-
	LD50 Dermal	Rabbit	>20 g/kg	-
benzene	LD50 Oral	Rat	490 mg/kg	-
	LC50 Inhalation Vapor	Rat	13700 ppm	4 hours
hydrogen sulfide	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation Gas.	Rat	444 ppm	4 hours

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Petroleum	Eyes - Mild irritant	Rabbit	-	100 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
naphthalene	Skin - Mild irritant	Rabbit	-	495 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 0.05 MI	-
benzene	Eyes - Moderate irritant	Rabbit	-	88 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 UI	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-

#### Sensitization

Not available.

#### Mutagenicity

## Section 11. Toxicological information

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

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

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Petroleum	Category 3	-	Narcotic effects Respiratory tract irritation
naphthalene	Category 3	-	
benzene	Category 3 Category 3	-	Narcotic effects Respiratory tract irritation
hydrogen sulfide	Category 3 Category 3	-	Narcotic effects Respiratory tract irritation
	Category 3		Narcotic effects

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Petroleum	Category 2	-	blood system, liver, spleen, thymus blood system, eyes haematopoietic system
naphthalene	Category 2	-	
benzene	Category 1	oral, inhalation	

### Aspiration hazard

Name	Result
Crude Oil, Sour	ASPIRATION HAZARD - Category 1
Petroleum	ASPIRATION HAZARD - Category 1
benzene	ASPIRATION HAZARD - Category 1

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

### Potential acute health effects

**Eye contact** : Causes serious eye irritation.

**Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

**Skin contact** : Defatting to the skin. May cause skin dryness and irritation.

## Section 11. Toxicological information

**Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness

**Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness

**Skin contact** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking

**Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

### 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. 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** : May cause genetic defects.

**Reproductive toxicity** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
naphthalene	490	N/A	N/A	N/A	N/A
benzene	930	N/A	N/A	N/A	N/A
hydrogen sulfide	N/A	N/A	444	0.7	N/A

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Petroleum	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
naphthalene	Acute LC50 7.46 µg/l Marine water	Fish - Oncorhynchus tshawytscha	96 hours
	Acute EC50 1.6 mg/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
benzene	Chronic NOEC 0.5 mg/l Marine water	Crustaceans - Uca pugnax - Adult	3 weeks
	Chronic NOEC 1.5 mg/l Fresh water	Fish - Oreochromis mossambicus	60 days
	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 9.23 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic EC10 >1360 mg/l Fresh water	Algae - Desmodesmus subspicatus	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
hydrogen sulfide	Acute EC50 62 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus	2 days
	Acute LC50 2 µg/l Fresh water	Fish - Coregonus clupeaformis - Yolk-sac fry	96 hours

**Conclusion/Summary** : Not available.

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
benzene	OECD 301F Ready Biodegradability - Manometric Respirometry Test	96 % - Readily - 28 days	17 mg/l	Activated sludge

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

### Bioaccumulative potential

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

**Date of issue/Date of revision** 6/3/2024 **Date of previous issue** : 12/10/2020 **Version** : 2 12/17

## Section 12. Ecological information

### 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.

## Section 14. Transport information

	DOT Classification	IMDG	IATA
<b>UN number</b>	UN1267	UN1267	UN1267
<b>UN proper shipping name</b>	Petroleum crude oil	PETROLEUM CRUDE OIL	Petroleum crude oil
<b>Transport hazard class(es)</b>	3 	3  	3 
<b>Packing group</b>	I	I	I
<b>Environmental hazards</b>	No.	Yes.	Yes. The environmentally hazardous substance mark is not required.

### Additional information

**DOT Classification** : **Reportable quantity** 1111.1 lbs / 504.44 kg [154.33 gal / 584.19 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.  
**Limited quantity** Yes.  
**Packaging instruction** Exceptions: 150. Non-bulk: 201. Bulk: 243.  
**Quantity limitation** Passenger aircraft/rail: 1 L. Cargo aircraft: 30 L.  
**Special provisions** 144, 357, T11, TP1, TP8

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.  
**Emergency schedules** F-E, S-E  
**Special provisions** 357

## Section 14. Transport information

- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.  
**Quantity limitation** Passenger and Cargo Aircraft: 1 L. Packaging instructions: 351. Cargo Aircraft Only: 30 L. Packaging instructions: 361. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.  
**Special provisions** A3, A177
- 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.
- Note** : PGII could be applicable based on the tank volume.
- Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

- U.S. Federal regulations** : **TSCA 8(a) PAIR:** naphthalene  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**United States inventory (TSCA 8b):** All components are active or exempted.  
**Clean Water Act (CWA) 307:** naphthalene; benzene  
**Clean Water Act (CWA) 311:** naphthalene; benzene; hydrogen sulfide
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed
- Clean Air Act Section 602 Class I Substances** : Not listed
- Clean Air Act Section 602 Class II Substances** : Not listed
- DEA List I Chemicals (Precursor Chemicals)** : Not listed
- DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

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

**SARA 304 RQ** : 11111.1 lbs / 5044.4 kg [1543.3 gal / 5841.9 L]

### SARA 311/312

#### **Classification**

- : FLAMMABLE LIQUIDS - Category 1  
 EYE IRRITATION - Category 2A  
 GERM CELL MUTAGENICITY - Category 1  
 CARCINOGENICITY - Category 1A  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3  
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

## Section 15. Regulatory information

ASPIRATION HAZARD - Category 1  
 HNOC - Defatting irritant  
 HNOC - Static-accumulating flammable liquid

### Composition/information on ingredients

Name	%	Classification
Petroleum	100	FLAMMABLE LIQUIDS - Category 1 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ASPIRATION HAZARD - Category 1 HNOC - Defatting irritant HNOC - Static-accumulating flammable liquid
naphthalene	0.9	FLAMMABLE SOLIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
benzene	<1	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 1B CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
hydrogen sulfide	<1	ASPIRATION HAZARD - Category 1 FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas ACUTE TOXICITY (inhalation) - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	naphthalene	91-20-3	0.9
	benzene	71-43-2	<1
<b>Supplier notification</b>	naphthalene	91-20-3	0.9
	benzene	71-43-2	<1

## Section 15. Regulatory information

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
- New York** : The following components are listed: Naphthalene; Benzene
- New Jersey** : The following components are listed: PETROLEUM DISTILLATES; CRUDE OIL (PETROLEUM); NAPHTHALENE; MOth FLAKES; BENZENE
- Pennsylvania** : The following components are listed: PETROLEUM; NAPHTHALENE; BENZENE; BENZOL DILUENT

### California Prop. 65

- ⚠ WARNING:** This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Naphthalene, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Ingredient name	No significant risk level	Maximum acceptable dosage level
Naphthalene	Yes.	-
Benzene	Yes.	Yes.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Ingredient name	List name	Status
PAHs	POPs - Annex 3	Listed

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	*	3
Flammability		3
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.



## Section 16. Other information

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

### [National Fire Protection Association \(U.S.A.\)](#)



### [Procedure used to derive the classification](#)

Classification	Justification
FLAMMABLE LIQUIDS - Category 1	On basis of test data
EYE IRRITATION - Category 2A	Calculation method
GERM CELL MUTAGENICITY - Category 1	Calculation method
CARCINOGENICITY - Category 1A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment

### [History](#)

<b>Date of issue/Date of revision</b>	: 6/3/2024
<b>Date of previous issue</b>	: 12/10/2020
<b>Version</b>	: 2
<b>Prepared by</b>	: Sphera Solutions
<b>Key to abbreviations</b>	: ATE = Acute Toxicity Estimate AMP = Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available UN = United Nations
<b>References</b>	: HCS (U.S.A.)- Hazard Communication Standard International transport regulations

✔ 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 supplier, 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.