




### 1.0 Identification

<b>GHS product identifier:</b> crude oil, sweet (PG II)	<b>Version #:</b> 01
<b>Synonyms:</b> oil, crude, petroleum crude oil	<b>Issue date:</b> 09/30/2016
<b>CAS #:</b> 8002-05-09 Crude oil is a complex mixture of paraffinic, cycloparaffinic, and aromatic hydrocarbons covering carbon numbers ranging from C1-C60. It may contain trace amounts of nitrogen, sulfur compounds, oxygen, and heavy metals.	
<b>Recommended use:</b> Product produced at Ovintiv well sites for sale.	
<b>Recommended restrictions:</b> Use in accordance with this SDS.	
<b>Manufacturer:</b> Ovintiv USA Inc., 370 17 <sup>th</sup> Street, Suite 1700, Denver, CO 80202	
<b>Emergency phone #:</b> 866-244-0062 or 911	<b>Email:</b> myEHS@ovintiv.com

### 2.0 Hazard Identification

#### 2.1 GHS Classification and Label Elements

Signal Word: <b>Danger</b>			
Type of Hazard		Category	Hazard Symbol
Physical hazards	Flammable liquids	2	
Health hazards	Skin corrosion/irritation	2	
	Germ cell mutagenicity	1B	
	Carcinogenicity	1B	
	Reproductive toxicity	2	
	Specific target organ toxicity	3	
	Aspiration hazard	1	
Environmental hazards	Chronic toxicity to the aquatic environment	2	

#### 2.2 Hazard Statement

- Highly flammable liquid and vapor.
- May be fatal if swallowed and enters the airways.
- Causes skin irritation.
- May cause drowsiness or dizziness.

- May cause cancer.
- May cause genetic defects.
- Suspected of damaging fertility.
- May cause eye irritation.
- Suspected of damaging a fetus.

### 2.3 Precautionary Statement

- Prevention
  - Keep away from heat/sparks/open flames/hot surfaces.
  - No smoking.
  - Keep container tightly closed.
  - Use personal protective equipment to prevent contact as determined by assessing hazards and likely routes of exposure.
  - Avoid breathing gas/mist/vapors/spray – use only outdoors or in a well-ventilated area.
  - Do not handle until all safety precautions have been read and understood.
  - Wash hands thoroughly after handling.
- Response
  - Take all contaminated clothing off immediately.
  - Rinse skin with water/shower.
  - Wash with plenty of water.
  - If skin irritation occurs, get medical advice/attention.
  - Wash contaminated clothing before re-use.
  - If exposed or concerned, get medical advice/attention.
  - If inhaled, remove person to fresh air and keep comfortable for breathing.
  - If ingested, immediately call poison center/doctor. Do not induce vomiting.
- Storage
  - Store in a well-ventilated place.
  - Keep cool.
  - Store locked up.

- Disposal
  - Dispose of contents/container in accordance with local/regional/national/international regulations.
- Specific hazard
  - Breathing of high vapor concentrations may cause dizziness, light-headedness, headache, nausea, and loss of coordination.
  - Continued inhalation may result in unconsciousness.
  - Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping, and oil acne.
  - Prolonged and repeated exposure with the substance may cause skin cancer.
  - May cause damage to the liver.
  - Components of the product may be absorbed into the body through the skin.
  - Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
  - Material will float and can be re-ignited on surface of water.
- Hazards not otherwise classified
  - None

### 3.0 Composition/Information on Ingredients

Components	CAS #	Percent (Weight)
Crude oil	8002-05-9	89-100
n-Hexane	110-54-3	<3
Toluene	108-88-3	<2
Benzene	71-43-2	<1
Xylenes	95-47-6	<4
Ethylbenzene	100-41-4	<1

## 4.0 First Aid Measures

### 4.1 First Aid Procedures

- Inhalation: Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if discomfort develops or persists.
- Skin contact: Immediately remove contaminated clothing. Wash with soap and water. Continue to rinse for up to 15 minutes. In case of rashes, wounds, or other skin disorders, seek medical attention and bring along this SDS.

- Eye contact: Remove contact lenses and open eyelids wide apart. Immediately flush with plenty of water for up to 15 minutes. Get medical attention if irritation 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. Transport immediately to hospital and take this SDS. Never give anything by mouth to an unconscious person.

**4.2 Most Important Symptoms (Effects Acute and Delayed)**

- Irritation of eyes and mucous membranes.
- Skin irritation.
- Dermatitis.
- Ingestion may cause irritation and malaise.
- Droplets of product aspirated into the lungs through ingestion or vomiting may cause serious chemical pneumonia.

**4.3 Notes to Physician**

- Treat symptomatically. The effects may be delayed.

**4.4 General Advice**

- Get medical attention if any discomfort develops.

**5.0 Fire-Fighting Measures**

**5.1 Flammable Properties**

- This is a highly flammable liquid and vapor.
- Explosive vapor/air mixtures may be formed even at normal room temperatures.
- See Sections 9.0 Physical and Chemical Properties and 10.0 Stability and Reactivity for physical/chemical and stability/reactive properties.
- NFPA: health 2, flammability 3, instability: 0.

**Extinguishing Media**

Suitable	Do Not Use
<ul style="list-style-type: none"> <li>• Dry chemical</li> <li>• Carbon dioxide (CO<sub>2</sub>)</li> <li>• Sand</li> <li>• Earth</li> <li>• Water spray</li> <li>• Regular foam</li> </ul>	<ul style="list-style-type: none"> <li>• Water jet, which will spread the fire.</li> <li>• Using foam and water on the same surface; water destroys foam.</li> </ul>

## Protection of Fire-Fighters

Specific Hazards Arising from Product	Protective Equipment and Precautions
<ul style="list-style-type: none"> <li>• Thermal decomposition may produce smoke and lower-molecular-weight organic compounds, whose composition may not have been characterized.</li> <li>• Sulfur oxides (SO<sub>x</sub>)</li> <li>• Nitrogen oxides (NO<sub>x</sub>)</li> </ul>	<ul style="list-style-type: none"> <li>• Self-contained breathing apparatus (SCBA) and full protective clothing must be worn when fighting fire in an enclosed or inadequately ventilated area.</li> </ul>

**5.2 Fire-Fighting Equipment/Instructions**

- Move containers of product 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.

**6.0 Accidental Release Measures**

- Personal precautions:
  - Stay upwind.
  - Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area).
  - Avoid contact with skin.
  - Wear suitable protective clothing, gloves, and eye/face protection.
- Environmental precautions:
  - Prevent spreading over a wide area (e.g., by using containment or oil barriers).
  - Do not contaminate water.
  - Contact local authorities in case of spillage to drain/aquatic environment.
- Methods of containment:
  - Stop the flow of material, if this is without risk.
  - Dike far ahead of spill for later disposal.
- Methods for cleaning up:
  - Remove sources of ignition.
  - Beware of the explosion danger.
  - Small spills: Absorb spillage with non-combustible absorbent material.

## 7.0 Handling and Storage

### 7.1 Safe Handling Precautions

- The product is highly flammable. Explosive vapor/air mixtures may be formed even at normal room temperatures.
- Restrict access to the work area to only the people handling the product.
- Should be handled in closed systems, if possible.
- Avoid contact with eyes, skin, and clothing.
- Avoid inhalation of vapors.
- Wear appropriate personal protective equipment.
- 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.
- Immediately change contaminated clothes.
- Do not eat, drink, or smoke when using the product.
- Observe good hygiene practices.
- HMIS: health: 2, flammability: 3, physical hazards: 0.

### 7.2 Conditions for Safe Storage Including Incompatibilities

- Follow rules for flammable liquids.
- Keep away from heat, sparks, and open flame.
- Keep in a cool, well-ventilated place.
- Keep way from food, drink, and animal feeding areas and materials.
- Store away from incompatible materials: strong acids and strong oxidizing agents (see 10.0 Stability and Reactivity).

## 8.0 Exposure Controls/Personal Protection

Occupational Exposure Limits

Component	Limit Type	OSHA PEL <sup>1</sup>	ACGIH TLV	NIOSH REL
Toluene CAS# 108-88-3	STEL	300 ppm (C)	None	150 ppm
	TWA	200 ppm	20 ppm	100 ppm
Benzene CAS# 71-43-2	STEL	5 ppm	2.5 ppm	1 ppm
	TWA	1 ppm	0.5 ppm	0.1 ppm
n-Hexane CAS# 110-54-3	STEL	None	None	None
	TWA	500 ppm	50 ppm	50 ppm
Xylenes CAS# 95-47-6	STEL	None	150 ppm	150 ppm
	TWA	100 ppm	100 ppm	100 ppm
Ethylbenzene CAS# 100-41-4	STEL	None	None	125 ppm
	TWA	100 ppm	20 ppm	100 ppm

### TABLE NOTES

(1) Limits contained in 29 CFR 1910.1000 Z-2 may apply.

STEL=short-term exposure limit, PEL=permissible exposure limit, REL=recommended exposure limit, TLV=threshold limit value, TWA=time-weighted average, C=ceiling, ppm=parts per million.

### 8.1 Recommended Monitoring Procedures

- Follow standard monitoring procedures per established OSHA or NIOSH methods.
- In the absence of occupational exposure limits for this product, it is recommended that the above-mentioned limits are followed.

### 8.2 Engineering Controls

- Provide adequate ventilation and minimize the risk of inhalation of vapors and oil mist.
- Provide easy access to water supply and eye wash facilities.
- Use explosion-proof equipment.

### 8.3 Personal Protective Equipment

- Eye face protection: Wear chemical-resistant goggles/face shield.
- Skin protection: Anti-static, flame resistant, and chemical resistant protective clothing is recommended. Wear protective gloves, such as nitrile or butyl rubber. Be aware that the liquid may penetrate gloves over time; frequent glove change is advised. Suitable gloves can be recommended by the glove supplier.
- Respiratory protection: An approved respirator must be worn if engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established). Respirators do not protect against potentially explosive environments. Industrial hygienists should monitor personal exposure to determine the need for a respirator.

## 8.4 General Hygiene

- When using do not eat, drink, or smoke.
- Wash hands after handling.
- Launder contaminated clothing before reuse.
- Working clothes should be kept separately from other clothes.
- Handle in accordance with good hygiene and safety practices.
- Observe medical surveillance requirements.

## 9.0 Physical and Chemical Properties

Physical state	Liquid
Form	Liquid
Color	Dark brown, black, with green or yellow tint
Odor	Hydrocarbon
pH	Not available
Melting point/freezing point	Not available
Initial boiling point	>35°C (95°F)
Flash point	<23°C (73°F)
Lower explosive limit (by volume)	0.8%
Upper explosive limit (by volume)	15%
Vapor pressure	0.5-200 mm Hg at 20°C
Vapor density	Not available
Relative density	Not available
Solubility	Insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available

## 10.0 Stability and Reactivity

- Reactivity: This product is stable and non-reactive under normal conditions of use, storage, and transport.
- Chemical stability: Stable at normal conditions.
- Possibility of hazardous reactions: Hazardous polymerization does not occur.
- Conditions to avoid: Heat, sparks, flames, elevated temperatures, contact with incompatible materials.
- Incompatible materials: Strong acids and strong oxidizing agents.



- Hazardous decomposition products: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

## 11.0 Toxicological Information

### 11.1 Routes of Exposure

- Ingestion: May cause irritation and malaise.
- Inhalation: Breathing high concentrations of vapors may cause dizziness, light-headedness, headache, nausea, and loss of coordination. Continued inhalation may result in unconsciousness.
- Absorption: May be absorbed through the skin.

### 11.2 Toxicological Effects

- Occupational exposures to the substance or mixture may cause adverse effects.
- Acute effects
  - Human evidence indicates that the product has very low acute oral, dermal, or inhalation toxicity. However, it can produce severe injury if taken into the lung as a liquid, and there may be profound central nervous system depression following prolonged exposure to high levels of vapor.
  - Breathing high concentrations may cause dizziness, light-headedness, headache, nausea, and loss of coordination.
  - Continued inhalation may result in unconsciousness.
  - Irritant effect on skin: may irritate and cause stomach pain, vomiting, diarrhea, and nausea.
- Chronic effects
  - Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema, chapping, and oil acne.
  - May cause damage to the liver, kidney, and central nervous system.
  - Contains n-hexane, which can cause prolonged damage to the peripheral nervous system.

### 11.3 Skin Corrosion/Irritation

- Causes skin irritation.
- Repeated exposure may cause skin dryness and cracking.
- May be absorbed through the skin.

### 11.4 Eye Irritation

- May cause eye irritation on direct contact.

**11.5 Sensitization**

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

**11.6 Local Effects**

- Irritating to eyes and skin.
- Dermatitis.
- Irritation of eyes and mucous membranes.
- Irritation of nose and throat.

**11.7 Mutagenicity**

- May cause genetic defects.

**11.8 Carcinogenicity**

- May cause cancer.

Substance	Agency	Classification
Benzene	ACGIH	A1 Confirmed human carcinogen
	IARC	1 Carcinogenic to humans
	US NTP Report on Carcinogens	Known to be a human carcinogen
	US OSHA Specifically Regulated Substances (29 CFR 1910.101-1050)	
Toluene and Xylenes	ACGIH	A4 Not classifiable as a human carcinogen
	IARC	3 Not classifiable as to carcinogenicity to humans

**11.9 Reproductive Toxicity**

- Suspected of damaging fertility.

**11.10 Symptoms**

- Skin irritation, dermatitis.
- Irritation of eyes and mucous membranes.
- Irritation of nose and throat.

**11.11 Specific Target Organ Toxicity – Single Exposure**

- Not available.

**11.12 Specific Target Organ Toxicity**

- Not available.

## 12.0 Ecological Information

- Ecotoxicity: Oil spills are generally hazardous to the environment.
- Environmental effects: This product contains volatile organic compounds, which have a potential to create photochemical ozone.
- Aquatic toxicity: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Bioaccumulative potential: Has the potential to bioaccumulate.
- Mobility in soil: In general, crude oil has low mobility in soil. However, the components in crude oil have varying degrees of mobility.
- Water solubility: This product is insoluble in water. It will spread on the water surface or the saturated zone. However, as the product degrades, some of the components will dissolve in water, especially the aromatic fractions. The alkanes are considered hydrophobic and have low solubility.

## 13.0 Disposal Considerations

This product is exempt as an EPA RCRA hazardous waste according to 40 CFR 261. It is the responsibility of the user to comply with federal, state, and local regulations for disposal.

## 14.0 Transportation Information

### US DOT

<b>UN number</b>	1267
<b>UN proper shipping name</b>	Crude oil
<b>Transport hazardous class</b>	3
<b>Packing group</b>	II
<b>Label required</b>	3
<b>Environmental hazards: marine pollutant</b>	Yes
<b>Special provisions</b>	144, 357, IB2, T4, TP1, TP8
<b>Packaging exceptions</b>	150
<b>Packaging non-bulk</b>	202
<b>Packaging bulk</b>	242
<b>Special precautions for the user</b>	Read safety instructions, SDS, and emergency procedures before handling.

## IATA

UN number	1267
UN proper shipping name	Crude oil
Transport hazardous class(es)	3
Packing group	II
Environmental hazards	Yes
Label required	3
ERG code	3L
Special precautions for the user	Read safety instructions, SDS, and emergency procedures before handling.

## IMDG

UN number	1267
UN proper shipping name	Crude oil
Transport hazardous class(es)	3
Packing group	II
Environmental hazards: marine pollutant	Yes
Label required	3
EmS	F-E, S-E
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and, if transported in bulk, is covered under MARPOL 73/78 Annex I.
General information	This product is covered under the scope of MARPOL Annex I.

## 15.0 Regulatory Information

## U.S.

OSHA	This product is a hazardous chemical, as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA	This product is listed in the TSCA chemical inventory.
SARA Section 302	Not applicable.
SARA Section 304	This product may contain the following component(s) that in the event of a spill may be subject to SARA reporting requirements: benzene, ethyl benzene toluene, xylene, n-hexane.
SARA Section 311/312	The following categories apply to this product: acute health hazard, chronic health hazard, fire hazard.
SARA Section 313	This product may contain the following component(s) that may be subject to reporting on

	a toxic release inventory: benzene, ethyl benzene, toluene, n-hexane, xylene.
<b>EPA Clean Water Act</b>	Spills into or leading to surface waters that cause a sheen must be reported to the National Response Center, 800-424-8802.

#### International Inventories

Country or Region	Inventory Name	On Inventory (Yes/No)
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

## 16.0 Other Information, Including Date of Preparation of Last Version

Issue date: 09/30/2016

Version #: 01

References: IARC Monographs. Overall Evaluation of Carcinogenicity (Volumes 1-102) IUCLID. Hazardous Substances Data Bank.

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.