Crude Oil-POV

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Issue date: 07/06/2016 Revision date: 06/03/2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : Crude Oil-POV

Other means of identification : Bartholomew
Atmospheric Hydrocarbon liquid

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

Use of the substance/mixture : Fuel

1.3. Details of the supplier of the safety data sheet

EnLink Midstream
1722 Routh Street
Suite 1300
Dallas, TX 75201
www.enlink.com

1.4. Emergency telephone number

Emergency number : 866-394-9839
CHEMTREC: 1-800-824-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Simple Asphy	H380
Flam. Liq. 2	H225
Skin Irrit. 2	H315
Muta. 1B	H340
Carc. 1A	H350
Repr. 2	H361
STOT SE 3	H336
STOT RE 2	H373
Asp. Tox. 1	H304

Aquatic Acute 2 H401
Aquatic Chronic 2 H411

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS02 GHS07 GHS08 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H340 - May cause genetic defects (Dermal, Inhalation, oral)
H350 - May cause cancer (Dermal, Inhalation, oral)
H361 - lung/respiratory system, Skin (Dermal, Inhalation)
H373 - May cause damage to organs through prolonged or repeated exposure
H380 - May displace oxygen and cause rapid suffocation
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P233 - Keep container tightly closed

P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P260 - Do not breathe vapors, mist, fume
P261 - Avoid breathing vapors, fume, mist
P264 - Wash hands, forearms and face, clothing thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves, protective clothing, eye protection
P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER
P302+P352 - If on skin: Wash with plenty of water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P308+P313 - If exposed or concerned: Get medical advice/attention
P312 - Call a doctor, a POISON CENTER if you feel unwell
P314 - Get medical advice/attention if you feel unwell
P321 - Specific treatment (see Section four (4) of this document on this label)
P331 - Do NOT induce vomiting
P332+P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use carbon dioxide (CO2), dry extinguishing powder, foam to extinguish
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Natural gas condensates (petroleum), Low boiling point naphtha - unspecified, [A complex combination of hydrocarbons separated as a liquid from natural gas in a surface separator by retrograde condensation. It consists mainly of hydrocarbons having carbon numbers predominantly in the range of C2 to C20. It is a liquid at atmospheric temperature and pressure.]	(CAS No) 64741-47-5	< 100	Flam. Liq. 1, H224 Skin Irrit. 2, H315 Muta. 1B, H340 Carc. 1B, H350 Repr. 2, H361 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Toluene	(CAS No) 108-88-3	≤17.307	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304
Undecane	(CAS No) 1120-21-4	< 4.692	Flam. Liq. 3, H226 Asp. Tox. 1, H304
Pentane	(CAS No) 109-66-0	≤ 2.329	Simple Asphy, H380 Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 STOT SE 3, H336 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
n-hexane	(CAS No) 110-54-3	≤2.319	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
n-Heptane	(CAS No) 142-82-5	≤2.189	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Isopentane	(CAS No) 78-78-4	<2.108	Aquatic Acute 2, H401
Octane	(CAS No) 111-65-9	≤ 2.002	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
n-Butane	(CAS No) 106-97-8	≤1.772	Simple Asphy, H380 Flam. Gas 1, H220 Liquefied gas, H280
m&p-Xylene	(CAS No) 179601-23-1	≤1.768	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Aquatic Acute 3, H402
Nonane	(CAS No) 111-84-2	≤1.689	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation: gas), H332 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
methylcyclohexane	(CAS No) 108-87-2	≤1.632	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
2-methylheptane	(CAS No) 592-27-8	≤1.632	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Decane	(CAS No) 124-18-5	<1.517	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Acute 3, H402

Name	Product identifier	%	GHS-US classification
2-methylhexane	(CAS No) 591-76-4	≤1.384	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3-methylhexane	(CAS No) 589-34-4	≤1.073	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3-methylpentane	(CAS No) 96-14-0	≤ 0.979	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
3-methylheptane	(CAS No) 589-81-1	≤ 0.979	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Isobutane	(CAS No) 75-28-5	≤ 0.607	Simple Asphy, H380 Flam. Gas 1, H220
o-Xylene	(CAS No) 95-47-6	≤0.57	Flam. Liq. 3, H226 Aquatic Acute 2, H401
Propane	(CAS No) 74-98-6	≤0.386	Simple Asphy, H380 Flam. Gas 1, H220 Compressed gas, H280
Benzene	(CAS No) 71-43-2	≤ 0.285	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304
Ethane	(CAS No) 74-84-0	≤ 0.005	Flam. Gas 1, H220 Compressed gas, H280

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

First-aid measures after inhalation : If exposed: Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

First-aid measures after skin contact : Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash with plenty of soap and water. In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.

First-aid measures after eye contact : Flush eyes with lukewarm water for 15 minutes opening and closing eyelids to ensure adequate rinsing. If redness, irritation, pain, or tearing occurs, seek medical attention. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion : Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. Get Immediate Medical Attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Volatile components of this product can cause respiratory and nasal irritation, headache, dizziness, drowsiness, nausea and loss of coordination. Significant concentrations of hydrogen sulfide gas can be present in the vapor space of storage tanks and bulk transport compartments. With the loss of highly volatile components, weathered oil does not present an inhalation hazard.

Symptoms/injuries after skin contact : May cause moderate irritation. Prolonged or repeated exposure can cause dermatitis, folliculitis or oil acne.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : Swallowing this material may be harmful. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea. Aspiration into lungs may cause chemical pneumonia and lung damage.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : For small fires — Class B fire-extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. Larger fires -water spray, fog or foam (AFFF/ATC) can be used.

5.2. Special hazards arising from the substance or mixture

Fire hazard : HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas. Run over to sewer may create fire. Many liquids are lighter than water.

Explosion hazard : Will form explosive mixtures with air. Vapor explosion hazard indoors, outdoors or in sewers. Containers may explode when heated. Runoff to sewer may create fire or explosion hazard.

Reactivity : Stable under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Move containers from fire area if you can do it without risk. Gas fires should not be extinguished unless the gas flow can be stopped immediately. Shut off gas source and allow the fire to burn itself out.

Protection during firefighting : Wear positive pressure self-contained breathing apparatus (SCBA).Structural firefighters' protective clothing will only provide limited protection. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

Other information : If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. Fire involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel. Large Spill: Consider initial downwind evacuation for at least 300 meters (1000 feet).

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

6.2. Environmental precautions

Avoid contact of spilled material with soil and prevent runoff entering surface waterways. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

6.3. Methods and material for containment and cleaning up

For containment : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled.

Methods for cleaning up : Large Spill: Dike far ahead of liquid spill for later disposal. Water spray may reduce vapor; but may not prevent ignition in closed spaces. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : In use, may form flammable vapor-air mixture. Keep away from heats; sparks open flames, hot surfaces. - No smoking. Do not pressurize, cut, or weld containers. Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling : Avoid contact with skin, eyes and clothing. Earth all parts which can be electrically charged. Prevent the build-up of electrostatic charge.

Hygiene measures : Practice good housekeeping. Wash thoroughly after handling. Change contaminated clothing. Do not reuse until laundered.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : . Keep away from heat, sparks and flame. Surfaces. Keep container tightly closed in a dry and well-ventilated place. Proper grounding procedures to avoid static electricity should be followed. OSHA requires cylinder storage be segregated from oxidizers and other combustible materials by a distance of at least 30 feet.

Incompatible products : Store away from strong oxidizing materials. Strong acids. Strong bases.

Incompatible materials : Sources of ignition. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

n-hexane (110-54-3)		
ACGIH	ACGIH TWA (mg/m^3)	176 mg/m^3
ACGIH	ACGIH TWA (ppm)	50 ppm
ACGIH	Remark (ACGIH)	CNS impair; peripheral
OSHA	OSHA PEL (TWA) (mg/m^3)	1800 mg/m^3
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Pentane(109-66-0)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m^3)	2950 mg/m^3
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Toluene (108-88-3)		
ACGIH	ACGIH TWA (ppm)	20 ppm
ACGIH	Remark (ACGIH)	Visual impair; female repro;
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
OSHA	OSHA PEL (Ceiling) (ppm)	300 ppm
OSHA	Remark (OSHA)	(2) See Table Z-2.

n-Heptane (142-82-5)		
ACGIH	ACGIH TWA (ppm)	400 ppm
OSHA	OSHA PEL (TWA) (mg/m^3)	2000 mg/m^3
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Octane (111-65-9)		
ACGIH	ACGIH TWA (ppm)	300 ppm
ACGIH	Remark (ACGIH)	URT irr
OSHA	OSHA PEL (TWA) (mg/m^3)	2350 mg/m^3
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Nonane (111-84-2)		
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	Remark (ACGIH)	CNS impair
OSHA	Not applicable	

n-Butane (106-97-8)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	

methylcyclohexane (108-87-2)		
ACGIH	ACGIH TWA (ppm)	400 ppm
ACGIH	Remark (ACGIH)	URT irr; CNS impair; liver & kidney
OSHA	OSHA PEL (TWA) (mg/m^3)	2000 mg/m^3
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Benzene (71-43-2)		
ACGIH	ACGIH TWA (mg/m^3)	1.6 mg/m^3
ACGIH	ACGIH TWA (ppm)	0.50 ppm
ACGIH	ACGIH STEL (mg/m^3)	8 mg/m^3
ACGIH	ACGIH STEL (ppm)	2.5 ppm
ACGIH	Remark (ACGIH)	Leukemia
OSHA	OSHA PEL (TWA) (ppm)	1 ppm (See 29 CFR 1910.1028) OSHA AL 0.5 ppm TWA
OSHA	OSHA PEL (STEL) (ppm)	5 ppm
OSHA	Remark (OSHA)	Engineering and work practice controls shall be used to keep exposures below 10 ppm unless it is proven to be not feasible.

Isopentane (78-78-4)		
ACGIH	ACGIH TWA (mg/m^3)	1770 mg/m^3 (TLV listed under Pentane, All isomers)
ACGIH	ACGIH TWA (ppm)	600 ppm
OSHA	OSHA PEL (TWA) (mg/m^3)	2950 mg/m^3
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Natural gas condensates (petroleum), Low boiling point naphtha - unspecified, [A complex combination of hydrocarbons separated as a liquid from natural gas in a surface separator by retrograde condensation. It consists mainly of hydrocarbons having carbon numbers predominantly in the range of C2 to C20. It is a liquid at atmospheric temperature and pressure.] (64741-47-5)

ACGIH	Not applicable
OSHA	Not applicable

Isobutane (75-28-5)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m^3)	none

hexane (containing < 5 % n-hexane (203-777-6)), 2-methylpentane (107-83-5)		
ACGIH	ACGIH TWA (mg/m^3)	1760 mg/m^3
ACGIH	ACGIH TWA (ppm)	500 ppm
ACGIH	ACGIH STEL (mg/m^3)	3500 mg/m^3
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	

Propane (74-98-6)		
ACGIH	ACGIH TWA (mg/m³)	4508 mg/m³
ACGIH	ACGIH TWA (ppm)	2500 ppm
ACGIH	Remark (ACGIH)	Asphyxiant; CNS effects; Explosive
OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Decane (124-18-5)	
A C G I H	Not applicable
O S H A	Not applicable

3-methylhexane (589-34-4)	
A C G I H	Not applicable
O S H A	Not applicable

3-methylheptane (589-81-1)	
A C G I H	Not applicable
O S H A	Not applicable

2-methylhexane (591-76-4)	
A C G I H	Not applicable
O S H A	Not applicable

2-methylheptane (592-27-8)	
ACGIH	Not applicable
OSHA	Not applicable

Undecane (1120-21-4)	
ACGIH	Not applicable
OSHA	Not applicable

Ethane (74-84-0)		
ACGIH	ACGIH TWA (ppm)	Formerly 1000 ppm Based on Aliphatic hydrocarbon gases, Alkanes [C1-C4] ; Refer to Appendix F : Minimal Oxygen Content of the 2014 TLV Book
ACGIH	Remark (ACGIH)	Simple Asphyxiant if Oxygen level is 19.5 by volume; Explosive
OSHA	Not applicable	

3-methylpentane (96-14-0)		
ACGIH	ACGIH TWA (ppm)	500 ppm
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	
o,m,p-Xylene (95-47-6,106-42-3;108-38-3;1330-20-7)		
ACGIH	ACGIH TWA (ppm)	100 ppm
ACGIH	ACGIH STEL (ppm)	150 ppm
OSHA	OSHA PEL (TWA)(ppm)	100 ppm

8.2. Exposure controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure good ventilation of the work station.

Materials for protective clothing : Nitrile. Butyl Rubber. Neoprene.

Hand protection	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical.
Eye protection	:	Use safety glasses and/or full face shield where splashing is possible. Maintain eye wash fountain in work area.
Skin and body protection	:	nitrile rubber gloves.
Respiratory protection	:	If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid
Color	: Straw in Color
Odor	: Hydrocarbon
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 36 °C (97°F)
Flash point	: < 10 °C (50°F)
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 6.70 psi (RVP)
Relative vapor density at 20 °C	: 0.7815 (Water=1)
Relative density	: No data available
Specific gravity / density	: ≥ 6.5 (Pounds/gallon)
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

API Gravity @ 60°F : 49.7

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Heat, sparks, open flame, and other ignition sources.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Combustion may produce carbon monoxide and other harmful substances.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

n-hexane (110-54-3)	
LD50 oral rat	25 g/kg Industrial Health. Vol. 32, Pg. 145, 1994.
LC50 inhalation rat (ppm)	48000 ppm/4h

PENTANE (109-66-0)	
LD50 oral rat	400 mg/kg National Technical Information Service. Vol. OTS0556690,

n-Heptane (142-82-5)	
LC50 inhalation rat (ppm)	25131 ppm/4h (103gm/m3/4H) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 32(10), Pg. 23, 1988.
ATE US (gases)	25131.000 ppmV/4h

Octane (111-65-9)	
LC50 inhalation rat (ppm)	25257 ppm/4h (118 g/m^3) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 32(10), Pg. 23, 1988.
ATE US (gases)	25257.000 ppmV/4h

Nonane (111-84-2)	
LC50 inhalation rat (ppm)	3200 ppm/4h Toxicology and Applied Pharmacology. Vol. 44, Pg. 53, 1978.
ATE US (gases)	3200.000 ppmV/4h
ATE US (vapors)	16.800 mg/l/4h

n-Butane (106-97-8)	
LC50 inhalation rat (mg/l)	658 mg/l/4h Farmakologiya i Toksikologiya Vol. 30, Pg. 102, 1967.

methylcyclohexane (108-87-2)	
LD50 oral rat	> 3200 mg/kg National Technical Information Service. Vol. OTS0556685
LC50 inhalation rat (ppm)	82 ppm/1h National Technical Information Service. Vol. OTS0556685
ATE US (gases)	41.000 ppmV/4h

Benzene (71-43-2)	
LD50 oral rat	930 mg/kg
LD50 dermal rabbit	> 9400 µl/kg
LC50 inhalation rat (ppm)	5714 ppm/4h

Natural gas condensates (petroleum), Low boiling point naphtha - unspecified, [A complex combination of hydrocarbons separated as a liquid from natural gas in a surface separator by retrograde condensation. It consists mainly of hydrocarbons having carbon numbers predominantly in the range of C2 to C20. It is a liquid at atmospheric temperature and pressure.] (64741-47-5)	
LC50 inhalation rat (ppm)	600mg/m3 [Meditsina Truda i Promyshlennaya Ekologiya. Industrial Medicine and Ecology. Vol. (1), Pg. 12, 1996.]

Isobutane (75-28-5)	
LC50 inhalation rat (ppm)	570000 ppm
ATE US (vapors)	658.000 mg/l/4h

hexane (containing < 5 % n-hexane (203-777-6)), 2-methylpentane (107-83-5)	
LD50 oral rat	25000 mg/kg
LC50 inhalation rat (ppm)	48000 ppm
ATE US (oral)	25000.000 mg/kg body weight

Decane (124-18-5)	
LC50 inhalation rat (ppm)	1369 ppm (8 Hour) Pharmacology and Toxicology Vol. 62, Pg. 259, 1988.

Undecane(1120-21-4)	
LC50 inhalation rat (ppm)	> 442 ppm (8 Hour)

Ethane (74-84-0)	
Additional information	From a toxicologic standpoint, methane and ethane are of low anesthetic potency and are practically inert; however, at very high concentrations, they act as a simple asphyxiant and can cause suffocation by displacement of oxygen from breathing atmosphere, below the critical level of 19.5% oxygen that is required to sustain life

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : May cause genetic defects (Dermal, Inhalation, oral).
Carcinogenicity : May cause cancer (Dermal, Inhalation, oral).

Toluene (108-88-3)	
IARC group	3 - Not classifiable

Benzene (71-43-2)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	2 - Known Human Carcinogens

Reproductive toxicity : lung/respiratory system, Skin (Dermal, Inhalation).
Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard : May be fatal if swallowed and enters airways.
Symptoms/injuries after inhalation : Volatile components of this product can cause respiratory and nasal irritation, headache, dizziness, drowsiness, nausea and loss of coordination. Significant concentrations of hydrogen sulfide gas can be present in the vapor space of storage tanks and bulk transport compartments. With the loss of highly volatile components, weathered oil does not present an inhalation hazard.
Symptoms/injuries after skin contact : May cause moderate irritation. Prolonged or repeated exposure can cause dermatitis, folliculitis or oil acne.
Symptoms/injuries after eye contact : Causes eye irritation.
Symptoms/injuries after ingestion : Swallowing this material may be harmful. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea. Aspiration into lungs may cause chemical pneumonia and lung damage.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product can cause fouling of shoreline and may be harmful to aquatic life in low concentrations.

n-hexane (110-54-3)	
LC50 fish	2500 (≤ 113) µg/l 96 hr Fathead minnow (pimephales promelas)

Pentane (109-66-0)	
LC50 fish	9.87 mg/l mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia	9.74 mg/l mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish	11.59 mg/l mg/l (Exposure time: 96 h - Species: Pimephales promelas)

n-Heptane (142-82-5)	
LC50 fish	375 mg/l Ghatak, D.B., M.M. Hossain, and S.K. Konar 1988. Acute Toxicity of n-Heptane and n-Hexane on Worm and Fish. Environ.Ecol. 6(4):943-947

Octane (111-65-9)	
EC50 other aquatic organisms	0.38 Species: water flea)

methylcyclohexane (108-87-2)	
LC50 fish	5.8 (5.8 - 181000) mg/l

Isopentane (78-78-4)	
LC50 fish	0.1 g/l (Coho salmon, silver salmon 96hr)
EC50 Daphnia	2.3 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Decane(124-18-5)	
LC50 fish	> 1000 mg/l
EC50 Daphnia	18 mg/l LeBlanc, G.A. 1980. Acute Toxicity of Priority Pollutants to Water Flea (Daphnia magna). Bull.Environ.Contam.Toxicol. 24(5):684-691 (OECDG Data File)

12.2. Persistence and degradability

Crude Oil-POV	
Persistence and degradability	Not established.

Isobutane (75-28-5)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Crude Oil-POV	
Bioaccumulative potential	This product is not expected to bioaccumulate.

PENTANE (109-66-0)	
Log Pow	3.39

n-Butane (106-97-8)	
Log Pow	2.89

Isopentane (78-78-4)	
Log Pow	3.2 - 3.3

Isobutane (75-28-5)	
BCF fish 1	1.57 - 1.97
Log Pow	2.88 (at 20 °C)
Bioaccumulative potential	Not established.

hexane (containing < 5 % n-hexane (203-777-6)), 2-methylpentane (107-83-5)	
Log Pow	3.6

Propane (74-98-6)	
Log Pow	2.3

Ethane (74-84-0)	
Log Pow	<= 2.3

12.4. Mobility in soil

Ethane (74-84-0)	
Mobility in soil	If released to soil, ethane is expected to have very high mobility based upon an estimated Koc of 37.

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of a“characteristic” hazardous waste. This product could also contain benzene at >0.5ppm and could exhibit the characteristics of “toxicity” (D018) as determined by the toxicity characteristic leaching procedure (TCLP). This material could become a hazardous waste if mixed or contaminated with hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1267 Petroleum crude oil, 3, II

UN-No.(DOT) : UN1267

Proper Shipping Name (DOT) : Petroleum crude oil

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 3 - Flammable liquid

Dangerous for the environment : Yes

Marine pollutant : Yes

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Special Provisions (49 CFR 172.102) : 144 - If transported as a residue in an underground storage tank (UST), as defined in 40 CFR 280.12, that has been cleaned and purged or rendered inert according to the American Petroleum Institute (API) Standard 1604 (IBR, see 171.7 of this subchapter), then the tank and this material are not subject to any other requirements of this subchapter. However, sediments remaining in the tank that meet the definition for a hazardous material are subject to the applicable regulations of this subchapter
357 - A bulk packaging that emits hydrogen sulfide in sufficient concentration that vapors evolved from the crude oil can present an inhalation hazard must be marked as specified in §172.327 of this part
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling TP8 - A portable tank having a minimum test pressure of 1.5 bar (150 kPa) may be used when the flash point of the hazardous material transported is greater than 0 C (32 F)

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location	: B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded
Emergency Response Guide (ERG) Number	: 128
Other information	: No supplementary information available.

TDG

Transport by sea

UN-No. (IMDG)	: 1267
Proper Shipping Name (IMDG)	: PETROLEUM CRUDE OIL
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: II - substances presenting medium danger
Limited quantities (IMDG)	: 1 L

Air transport

UN-No. (IATA)	: 1267
Proper Shipping Name (IATA)	: Petroleum crude oil
Class (IATA)	: 3 - Flammable Liquids
Packing group (IATA)	: II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Crude Oil-POV
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

n-Hexane (110-54-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb

Pentane (as n-pentane) (109-66-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporing requirements of the United States SARA Section 313

Toluene (108-88-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb

n-Heptane (142-82-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Octane (111-65-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Nonane (111-84-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

n-Butane (106-97-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporing requirements of the United States SARA Section 313

methylcyclohexane (108-87-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Benzene (71-43-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313
Not subject to reporing requirements of the United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb

Isopentane (78-78-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporing requirements of the United States SARA Section 313

Natural Gas Condensates (petroleum) (64741-47-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isobutane (75-28-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporing requirements of the United States SARA Section 313

Hexane (107-83-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propane (74-98-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporing requirements of the United States SARA Section 313

Decane (124-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

3-methylhexane (589-34-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

2-methylhexane (591-76-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

2-methylheptane (592-27-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Undecane (1120-21-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethane (74-84-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporing requirements of the United States SARA Section 313

3-methylpentane (96-14-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

15.2.2. National regulations

Benzene (71-43-2)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)

15.3. US State regulations

Toluene (108-88-3)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	Yes	Yes	Yes	

Benzene (71-43-2)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
Yes	Yes	No	Yes	

n-Hexane (110-54-3)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) List

Pentane (as n-pentane) (109-66-0)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Toluene (108-88-3)
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Critical Materials List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) List

n-Heptane (142-82-5)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Octane (111-65-9)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Nonane (111-84-2)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

n-Butane (106-97-8)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

methylcyclohexane (108-87-2)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Isopentane (78-78-4)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Isobutane (75-28-5)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Hexane (107-83-5)
U.S. - New Jersey - Right to Know Hazardous Substance List

Propane (74-98-6)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Decane (124-18-5)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

3-methylhexane (589-34-4)
U.S. - New Jersey - Right to Know Hazardous Substance List

Undecane (1120-21-4)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Ethane (74-84-0)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

SECTION 16: Other information

Revision Date : 07/06/2016 and 06/03/2019

Data sources : ECHA - http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d9b1369-7454-687c-e044-00144f67d249/DISS-9d9b1369-7454-687c-e044-00144f67d249_DISS-9d9b1369-7454-687c-e044-00144f67d249.html; GESTIS - http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates$fn=default.htm$3.0; ChemIDPlus - http://chem.sis.nlm.nih.gov/chemidplus/rn/100-51-6; Sciencelab.com, Inc. MSDS dated May 21, 2013. http://gestis en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates$fn=default.htm$3.0; PubChem - https://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=6017; ToxNet - http://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~jpBTjo:2; 29 CFR 1910.1000 – OSHA Annotated Table Z-1. ChemADVISOR, Inc.[https://www.chemadvisor.com]. ChemIDplus [http://chem.sis.nlm.nih.gov/chemidplus/rn/116094-23-6].

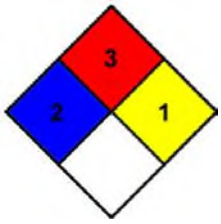
Full text of H-phrases:

Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 4	Hazardous to the aquatic environment - Chronic Hazard Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
Carc. 1B	Carcinogenicity Category 1B
Compressed gas	Gases under pressure Compressed gas
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Liquefied gas	Gases under pressure Liquefied gas
Muta. 1B	Germ cell mutagenicity Category 1B
Repr. 2	Reproductive toxicity Category 2
Simple Asphy	Simple Asphyxiant
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H224	Extremely flammable liquid and vapor
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H380	May displace oxygen and cause rapid suffocation
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 3 Serious Hazard
Physical	: 1 Slight Hazard

SDS US (GHS HazCom 2012)