

# Natural Gas Liquids

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

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### SECTION 1: IDENTIFICATION

#### 1.1. Product Identifier

**Product Form:** Mixture

**Product Name:** Natural Gas Liquids

**Synonyms:** NGL, Y-Grade

#### 1.2. Intended Use of the Product

Raw Materials

#### 1.3. Name, Address, and Telephone of the Responsible Party

##### Company

Williams Inc.

One Williams Center

Tulsa, OK 74172

855-945-5762

[www.williams.com](http://www.williams.com)

[ehs@williams.com](mailto:ehs@williams.com)

#### 1.4. Emergency Telephone Number

CHEMTREC:

1-800-424-9300 (US/Canada)

+01 703-527-3887 (International)

[Security.OperationsCenter@williams.com](mailto:Security.OperationsCenter@williams.com)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the Substance or Mixture

##### GHS-US/CA Classification

Flammable gases Category 1A	H220
Gases under pressure Liquefied gas	H280
Skin corrosion/irritation Category 2	H315
Germ cell mutagenicity Category 1B	H340
Carcinogenicity Category 1B	H350
Reproductive toxicity Category 2	H361
Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336
Specific target organ toxicity (repeated exposure) Category 2	H373
Simple Asphyxiant	
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

#### 2.2. Label Elements

##### GHS-US/CA Labeling

##### Hazard Pictograms (GHS-US/CA)



##### Signal Word (GHS-US/CA)

: Danger

##### Hazard Statements (GHS-US/CA)

- : H220 - Extremely flammable gas.  
H280 - Contains gas under pressure; may explode if heated.  
H315 - Causes skin 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.  
H373 - May cause damage to organs through prolonged or repeated exposure.

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- H400 - Very toxic to aquatic life.  
H410 - Very toxic to aquatic life with long lasting effects.  
May displace oxygen and cause rapid suffocation.
- Precautionary Statements (GHS-US/CA) :** 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, sparks, open flames and other ignition sources. No smoking.  
P260 - Do not breathe vapors, mist, or spray.  
P264 - Wash hands, forearms, and other exposed areas 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, and eye protection.  
P302+P352 - IF ON SKIN: Wash with plenty of water.  
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 POISON CENTER or doctor if you feel unwell.  
P314 - Get medical advice/attention if you feel unwell.  
P321 - Specific treatment (see section 4 on this SDS).  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
P381 - In case of leakage, eliminate all ignition sources.  
P391 - Collect spillage.  
P403 - Store in a well-ventilated place.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P405 - Store locked up.  
P410+P403 - Protect from sunlight. Store in a well-ventilated place.  
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

### 2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Contact with gas escaping the container can cause frostbite.

### 2.4. Unknown Acute Toxicity (GHS-US/CA)

No additional information available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Synonyms	Product Identifier	% *	GHS Ingredient Classification
Natural gas, petroleum, raw liquid mix	Natural gas (petroleum), raw liquid mix; Low boiling point naphtha -unspecified [A complex combination of hydrocarbons separated as a liquid from natural gas in a gas recycling plant by processes such as refrigeration or absorption. It consists mainly of saturated aliphatic hydrocarbons having carbon numbers in the range of C2 through C8.] / Natural gas, petroleum, raw liquid mix (A complex combination of hydrocarbons separated as a liquid from natural gas in a gas recycling plant by	(CAS-No.) 64741-48-6	100	Flam. Liq. <b>CAT</b> 1, H224 Skin Irrit. 2, H315 Muta. 1B, H340 Carc. 1B, H350 Repr. 2, H361 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

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	processes such as refrigeration or absorption. It consists mainly of saturated aliphatic hydrocarbons having carbon numbers in the range of C2-8.) / Natural gas (petroleum), raw liquid mixture / Natural gas (petroleum), raw liquid mixture - low boiling point naphtha - unspecified / Natural gas (petroleum) raw liquid mix / Natural gas (petroleum), raw liquid mix / Natural gas liquids			
Propane	Normal propane / PROPANE / n-Propane / R290	(CAS-No.) 74-98-6	< 65	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy
n-Heptane	Heptane, n- / HEPTANE / Normal heptane / Heptane / Heptane (n-)	(CAS-No.) 142-82-5	< 30	Flam. Liq. CAT 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
n-Butane	Butane / BUTANE	(CAS-No.) 106-97-8	< 25	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy
Isopentane	Butane, 2-methyl- / 2-Methylbutane / ISOPENTANE / Methylbutane / isopentane	(CAS-No.) 78-78-4	< 15	Flam. Liq. CAT 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Isobutane	2-Methylpropane / Propane, 2-methyl- / ISOBUTANE / R600a / isobutane	(CAS-No.) 75-28-5	< 10	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy
Ethane	Ethyl hydride / ETHANE	(CAS-No.) 74-84-0	< 10	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy
Octane	n-Octane / OCTANE	(CAS-No.) 111-65-9	< 10	Flam. Liq. CAT 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
n-Pentane	Pentane / Normal pentane / PENTANE / Pentane, n-	(CAS-No.) 109-66-0	< 10	Flam. Liq. CAT 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Hexane	Hexane, n- / n-Hexane / Normal hexane	(CAS-No.) 110-54-3	< 8	Flam. Liq. CAT 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

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2-Methylpentane	Isohexane / Pentane, 2-methyl-	(CAS-No.) 107-83-5	< 6	Flam. Liq. <b>CAT</b> 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Decane	DECANE / Decane, n- / n-Decane	(CAS-No.) 124-18-5	< 5	Flam. Liq. <b>CAT</b> 3, H226 Asp. Tox. 1, H304
Nonane	n-Nonane / NONANE	(CAS-No.) 111-84-2	< 5	Flam. Liq. <b>CAT</b> 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3-Methylpentane	Pentane, 3-methyl- / 1,2,3-Trimethylpropane / Methylpentane, 3- / Diethylmethylmethane / 3-Methyl pentane	(CAS-No.) 96-14-0	< 5	Flam. Liq. <b>CAT</b> 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Neohexane	Butane, 2,2-dimethyl- / 2,2-Dimethylbutane	(CAS-No.) 75-83-2	< 5	Flam. Liq. <b>CAT</b> 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Benzene	Cyclohexatriene / Benzol	(CAS-No.) 71-43-2	< 0.1	Flam. Liq. <b>CAT</b> 2, H225 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Muta. 1B, H340 Carc. 1A, H350 STOT SE 3, H336 STOT SE 3, H335 STOT RE 1, H372 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412
Hydrogen sulfide	Hydrogen sulfide (H2S) / Hydrogen sulphide / Sulfur hydride / Dihydrogen sulphide / hydrogen sulfide / Hydrogen sulphide, hydrogen sulfide / Sulfane	(CAS-No.) 7783-06-4	< 0.01	Flam. Gas <b>1A</b> , H220 Press. Gas (Liq.), H280 Acute Tox. 2 (Inhalation:gas), H330 Eye Irrit. 2A, H319 STOT SE 3, H335 STOT SE 1, H370 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-statements: see section 16

\*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First-aid Measures

**General:** Rescuers must don respiratory protection before approaching exposed persons. Hydrogen sulfide has a characteristic rotten egg "sulfurous" odor with an odor threshold of less than 10 parts per billion. However, this odor should not be used as a warning property of toxic levels because H<sub>2</sub>S can overwhelm and deaden the sense of smell. Therefore, the smell of H<sub>2</sub>S should not be used as an indicator of a hazardous condition – a H<sub>2</sub>S meter or colorimetric indicating tubes are typically used to determine the

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concentration of H<sub>2</sub>S. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**Inhalation:** First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Obtain medical attention if breathing difficulty persists.

**Skin Contact:** Immediately remove contaminated clothing. Immediately drench affected area with soap and water for at least 15 minutes. For brief contact with a small amount: Rewarm with body heat. Get immediate medical advice/attention. For extensive contact or a large amount: Immediately call a poison center/doctor and follow their advice. Specific treatment is urgent, incorrect first-aid practices will aggravate the injury. Protect affected area with a loose cover until proper medical treatment is received.

**Eye Contact:** Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists. Rinse cautiously with water for at least 15 minutes.

**Ingestion:** Rinse mouth. Do NOT induce vomiting. Obtain medical attention. If vomiting occurs have person lean forward. If vomiting occurs, keep head below waistline.

### 4.2. Most Important Symptoms and Effects Both Acute and Delayed

**General:** Contains a small amount of Hydrogen Sulfide, symptoms of overexposure are headaches, dizziness, nausea, coughing, respiratory irritation, eye irritation, skin irritation, pain in the nose, and loss of consciousness. Heating of the product may release higher amounts of Hydrogen Sulfide (H<sub>2</sub>S). May cause frostbite on contact with the liquid. May cause drowsiness and dizziness. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Causes skin irritation. May cause genetic defects. Asphyxia by lack of oxygen: risk of death.

**Inhalation:** Hydrogen sulfide may cause respiratory paralysis. High concentrations may cause central nervous system depression such as dizziness, vomiting, numbness, drowsiness, headache, and similar narcotic symptoms. In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

**Skin Contact:** Contact with gas/liquid escaping the container can cause frostbite and freeze burns. Redness, pain, swelling, itching, burning, dryness, and dermatitis.

**Eye Contact:** Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

**Ingestion:** Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite.

**Chronic Symptoms:** Contains a small amount of Hydrogen Sulfide, symptoms of chronic exposure that may manifest as long-term or permanent effects are: headaches, dizziness, nausea, coughing, respiratory irritation, eye irritation, skin irritation, pain in the nose, and loss of consciousness. . May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May cause genetic defects.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Do not extinguish burning gas if flow cannot be shut off immediately. Extinguish secondary FIRES with appropriate materials.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Extremely flammable gas.

**Explosion Hazard:** Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors. May form flammable/explosive vapor-air mixture. Container may explode in heat of fire.

**Reactivity:** Hazardous reactions will not occur under normal conditions.

### 5.3. Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Fight fire remotely due to the risk of explosion.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

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**Hazardous Combustion Products:** Contains Sulfur, may release small amounts of hydrogen sulfide. Hydrogen sulfide is a highly flammable, explosive gas under certain conditions, is a toxic gas, and may be fatal. Gas can accumulate in the headspace of closed containers, use caution when opening sealed containers. Heating the product or containers can cause thermal decomposition of the product and release hydrogen sulfide. Carbon Oxides, Sulfur Oxides, Hydrocarbon Vapors, Smoke.

**Other Information:** Use water spray to disperse vapors. Do not allow run-off from fire fighting to enter drains or water courses.

### 5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Eliminate every possible source of ignition. Isolate from fire, if possible, without unnecessary risk. Hydrogen sulfide has a characteristic rotten egg "sulfurous" odor with an odor threshold of less than 10 parts per billion. However, this odor should not be used as a warning property of toxic levels because H<sub>2</sub>S can overwhelm and deaden the sense of smell. Therefore, the smell of H<sub>2</sub>S should not be used as an indicator of a hazardous condition – a H<sub>2</sub>S meter or colorimetric indicating tubes are typically used to determine the concentration of H<sub>2</sub>S. Do not get in eyes, on skin, or on clothing. Do not breathe gas.

#### 6.1.1. For Non-Emergency Personnel

**Protective Equipment:** Use appropriate personal protective equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### 6.1.2. For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Eliminate ignition sources. Evacuate unnecessary personnel, isolate, and ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Collect spillage.

### 6.3. Methods and Materials for Containment and Cleaning Up

**For Containment:** Remove ignition sources. Stop leak, if possible without risk. As an immediate precautionary measure, isolate spill or leak area in all directions.

**Methods for Cleaning Up:** Clean up spills immediately and dispose of waste safely. Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

### 6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** Contains a small amount of hydrogen sulfide. Hydrogen sulfide is a fatal, and highly flammable gas with a rotten egg odor that quickly causes odor fatigue. Heating of this product and storage under elevated temperatures or over long periods of time may release higher amounts of hydrogen sulfide. Hydrogen sulfide is also an asphyxiant. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content, hydrogen sulfide (H<sub>2</sub>S) and flammability. The inherent toxic and olfactory (sense of smell) fatiguing properties of hydrogen sulfide require that air monitoring alarms be used if concentrations are expected to reach harmful levels, such as in enclosed spaces, heated transport vessels and spill or leak situations. Handle empty containers with care because residual vapors are flammable. Ruptured cylinders may rocket. Do not pressurize, cut, or weld containers. Asphyxiating gas at high concentrations.

**Precautions for Safe Handling:** Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not handle until all safety precautions have been read and understood. Do not breathe gas. Obtain special instructions before use. Do not get in eyes, on skin, or on clothing.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed.

**Storage Conditions:** Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Store locked up/in a secure area.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers.

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### 7.3. Specific End Use(s)

Raw Materials

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

<b>Propane (74-98-6)</b>		
<b>USA ACGIH</b>	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content
<b>USA OSHA</b>	OSHA PEL (TWA) [1]	1800 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) [2]	1000 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA)	1800 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	1000 ppm
<b>USA IDLH</b>	IDLH [ppm]	2100 ppm (10% LEL)
<b>Alberta</b>	OEL TWA [ppm]	1000 ppm
<b>Nunavut</b>	OEL STEL [ppm]	1250 ppm
<b>Nunavut</b>	OEL TWA [ppm]	1000 ppm
<b>Northwest Territories</b>	OEL STEL [ppm]	1250 ppm
<b>Northwest Territories</b>	OEL TWA [ppm]	1000 ppm
<b>Québec</b>	VEMP (OEL TWA)	1800 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (OEL TWA) [ppm]	1000 ppm
<b>Saskatchewan</b>	OEL STEL [ppm]	1250 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	1000 ppm
<b>n-Heptane (142-82-5)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	400 ppm (Heptane, all isomers)
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	500 ppm (Heptane, all isomers)
<b>USA OSHA</b>	OSHA PEL (TWA) [1]	2000 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) [2]	500 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA)	350 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	85 ppm
<b>USA NIOSH</b>	NIOSH REL (Ceiling)	1800 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL C [ppm]	440 ppm
<b>USA IDLH</b>	IDLH [ppm]	750 ppm
<b>Alberta</b>	OEL STEL	2050 mg/m <sup>3</sup>
<b>Alberta</b>	OEL STEL [ppm]	500 ppm
<b>Alberta</b>	OEL TWA	1640 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA [ppm]	400 ppm
<b>British Columbia</b>	OEL STEL [ppm]	500 ppm (Heptane, isomers)
<b>British Columbia</b>	OEL TWA [ppm]	400 ppm (Heptane, isomers)
<b>Manitoba</b>	OEL STEL [ppm]	500 ppm (Heptane, all isomers)
<b>Manitoba</b>	OEL TWA [ppm]	400 ppm (Heptane, all isomers)
<b>New Brunswick</b>	OEL STEL	2050 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL STEL [ppm]	500 ppm
<b>New Brunswick</b>	OEL TWA	1640 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	400 ppm
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	500 ppm (Heptane, all isomers)
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	400 ppm (Heptane, all isomers)
<b>Nova Scotia</b>	OEL STEL [ppm]	500 ppm (Heptane, all isomers)
<b>Nova Scotia</b>	OEL TWA [ppm]	400 ppm (Heptane, all isomers)
<b>Nunavut</b>	OEL STEL [ppm]	500 ppm

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<b>Nunavut</b>	OEL TWA [ppm]	400 ppm
<b>Northwest Territories</b>	OEL STEL [ppm]	500 ppm
<b>Northwest Territories</b>	OEL TWA [ppm]	400 ppm
<b>Ontario</b>	OEL STEL [ppm]	500 ppm (Heptane, all isomers)
<b>Ontario</b>	OEL TWA [ppm]	400 ppm
<b>Prince Edward Island</b>	OEL STEL [ppm]	500 ppm (Heptane, all isomers)
<b>Prince Edward Island</b>	OEL TWA [ppm]	400 ppm (Heptane, all isomers)
<b>Québec</b>	VECD (OEL STEL) [ppm]	500 ppm (Heptane (all isomers))
<b>Québec</b>	VEMP (OEL TWA) [ppm]	400 ppm (Heptane (all isomers))
<b>Saskatchewan</b>	OEL STEL [ppm]	500 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	400 ppm
<b>Yukon</b>	OEL STEL	2000 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL [ppm]	500 ppm
<b>Yukon</b>	OEL TWA	1600 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA [ppm]	400 ppm
<b>n-Butane (106-97-8)</b>		
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers)
<b>USA NIOSH</b>	NIOSH REL (TWA)	1900 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	800 ppm
<b>USA IDLH</b>	IDLH [ppm]	1600 ppm (>10% LEL)
<b>Alberta</b>	OEL TWA [ppm]	1000 ppm
<b>British Columbia</b>	OEL STEL [ppm]	1000 ppm (Butane, all isomers)
<b>Manitoba</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers)
<b>New Brunswick</b>	OEL TWA	1900 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	800 ppm
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers)
<b>Nova Scotia</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers)
<b>Nunavut</b>	OEL STEL [ppm]	1250 ppm (Butane, all isomers)
<b>Nunavut</b>	OEL TWA [ppm]	1000 ppm (Butane, all isomers)
<b>Northwest Territories</b>	OEL STEL [ppm]	1250 ppm (Butane, all isomers)
<b>Northwest Territories</b>	OEL TWA [ppm]	1000 ppm (Butane, all isomers)
<b>Ontario</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, all isomers)
<b>Prince Edward Island</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers)
<b>Québec</b>	VEMP (OEL TWA)	1900 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (OEL TWA) [ppm]	800 ppm
<b>Saskatchewan</b>	OEL STEL [ppm]	1250 ppm (Butane, all isomers)
<b>Saskatchewan</b>	OEL TWA [ppm]	1000 ppm (Butane, all isomers)
<b>Yukon</b>	OEL STEL	1600 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL [ppm]	750 ppm
<b>Yukon</b>	OEL TWA	1400 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA [ppm]	600 ppm
<b>Isopentane (78-78-4)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Alberta</b>	OEL TWA	1770 mg/m <sup>3</sup> (Pentane, all isomers)
<b>Alberta</b>	OEL TWA [ppm]	600 ppm (Pentane, all isomers)
<b>British Columbia</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Manitoba</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Nova Scotia</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Nunavut</b>	OEL STEL [ppm]	750 ppm (Pentane, all isomers)
<b>Nunavut</b>	OEL TWA [ppm]	600 ppm (Pentane, all isomers)

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<b>Northwest Territories</b>	OEL STEL [ppm]	750 ppm (Pentane, all isomers)
<b>Northwest Territories</b>	OEL TWA [ppm]	600 ppm (Pentane, all isomers)
<b>Ontario</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Prince Edward Island</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Québec</b>	VEMP (OEL TWA) [ppm]	1000 ppm (Pentane (all isomers))
<b>Saskatchewan</b>	OEL STEL [ppm]	750 ppm (Pentane, all isomers)
<b>Saskatchewan</b>	OEL TWA [ppm]	600 ppm (Pentane, all isomers)
<b>Isobutane (75-28-5)</b>		
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers))
<b>USA NIOSH</b>	NIOSH REL (TWA)	1900 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	800 ppm
<b>British Columbia</b>	OEL STEL [ppm]	1000 ppm (Butane, all isomers)
<b>Manitoba</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers))
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers))
<b>Nova Scotia</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers))
<b>Nunavut</b>	OEL STEL [ppm]	1250 ppm (Butane, all isomers)
<b>Nunavut</b>	OEL TWA [ppm]	1000 ppm (Butane, all isomers)
<b>Northwest Territories</b>	OEL STEL [ppm]	1250 ppm (Butane, all isomers)
<b>Northwest Territories</b>	OEL TWA [ppm]	1000 ppm (Butane, all isomers)
<b>Ontario</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, all isomers))
<b>Prince Edward Island</b>	OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers))
<b>Saskatchewan</b>	OEL STEL [ppm]	1250 ppm (Butane, all isomers)
<b>Saskatchewan</b>	OEL TWA [ppm]	1000 ppm (Butane, all isomers)
<b>Ethane (74-84-0)</b>		
<b>USA ACGIH</b>	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content
<b>Alberta</b>	OEL TWA [ppm]	1000 ppm
<b>Nunavut</b>	OEL STEL [ppm]	1250 ppm
<b>Nunavut</b>	OEL TWA [ppm]	1000 ppm
<b>Northwest Territories</b>	OEL STEL [ppm]	1250 ppm
<b>Northwest Territories</b>	OEL TWA [ppm]	1000 ppm
<b>Saskatchewan</b>	OEL STEL [ppm]	1250 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	1000 ppm
<b>Octane (111-65-9)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	300 ppm
<b>USA OSHA</b>	OSHA PEL (TWA) [1]	2350 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) [2]	500 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA)	350 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	75 ppm
<b>USA NIOSH</b>	NIOSH REL (Ceiling)	1800 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL C [ppm]	385 ppm
<b>USA IDLH</b>	IDLH [ppm]	1000 ppm (10% LEL)
<b>Alberta</b>	OEL TWA	1400 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA [ppm]	300 ppm
<b>British Columbia</b>	OEL TWA [ppm]	300 ppm
<b>Manitoba</b>	OEL TWA [ppm]	300 ppm
<b>New Brunswick</b>	OEL STEL	1750 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL STEL [ppm]	375 ppm
<b>New Brunswick</b>	OEL TWA	1400 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	300 ppm
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	300 ppm

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<b>Nova Scotia</b>	OEL TWA [ppm]	300 ppm
<b>Nunavut</b>	OEL STEL [ppm]	375 ppm
<b>Nunavut</b>	OEL TWA [ppm]	300 ppm
<b>Northwest Territories</b>	OEL STEL [ppm]	375 ppm
<b>Northwest Territories</b>	OEL TWA [ppm]	300 ppm
<b>Ontario</b>	OEL TWA [ppm]	300 ppm (all isomers)
<b>Prince Edward Island</b>	OEL TWA [ppm]	300 ppm
<b>Québec</b>	VEMP (OEL TWA) [ppm]	300 ppm (all isomers)
<b>Saskatchewan</b>	OEL STEL [ppm]	375 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	300 ppm
<b>Yukon</b>	OEL STEL	1800 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL [ppm]	375 ppm
<b>Yukon</b>	OEL TWA	1450 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA [ppm]	300 ppm
<b>n-Pentane (109-66-0)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>USA OSHA</b>	OSHA PEL (TWA) [1]	2950 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) [2]	1000 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA)	350 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	120 ppm
<b>USA NIOSH</b>	NIOSH REL (Ceiling)	1800 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL C [ppm]	610 ppm
<b>USA IDLH</b>	IDLH [ppm]	1500 ppm (10% LEL)
<b>Alberta</b>	OEL TWA	1770 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA [ppm]	600 ppm
<b>British Columbia</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Manitoba</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>New Brunswick</b>	OEL STEL	2210 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL STEL [ppm]	750 ppm
<b>New Brunswick</b>	OEL TWA	1770 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	600 ppm
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Nova Scotia</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Nunavut</b>	OEL STEL [ppm]	750 ppm (Pentane, all isomers)
<b>Nunavut</b>	OEL TWA [ppm]	600 ppm (Pentane, all isomers)
<b>Northwest Territories</b>	OEL STEL [ppm]	750 ppm (Pentane, all isomers)
<b>Northwest Territories</b>	OEL TWA [ppm]	600 ppm (Pentane, all isomers)
<b>Ontario</b>	OEL TWA [ppm]	1000 ppm
<b>Prince Edward Island</b>	OEL TWA [ppm]	1000 ppm (Pentane, all isomers)
<b>Québec</b>	VEMP (OEL TWA) [ppm]	1000 ppm (Pentane (all isomers))
<b>Saskatchewan</b>	OEL STEL [ppm]	750 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	600 ppm
<b>Yukon</b>	OEL STEL	2250 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL [ppm]	750 ppm
<b>Yukon</b>	OEL TWA	1800 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA [ppm]	600 ppm
<b>Hexane (110-54-3)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	50 ppm
<b>USA ACGIH</b>	ACGIH chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route

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<b>USA ACGIH</b>	BEI (BLV)	0.5 mg/L Parameter: 2,5-Hexanedione without hydrolysis - Medium: urine - Sampling time: end of shift
<b>USA OSHA</b>	OSHA PEL (TWA) [1]	1800 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) [2]	500 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA)	180 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	50 ppm
<b>USA IDLH</b>	IDLH [ppm]	1100 ppm (10% LEL)
<b>Alberta</b>	OEL TWA	176 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA [ppm]	50 ppm
<b>British Columbia</b>	OEL TWA [ppm]	20 ppm
<b>Manitoba</b>	OEL TWA [ppm]	50 ppm
<b>New Brunswick</b>	OEL TWA	176 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	50 ppm
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	50 ppm
<b>Nova Scotia</b>	OEL TWA [ppm]	50 ppm
<b>Nunavut</b>	OEL STEL [ppm]	62.5 ppm
<b>Nunavut</b>	OEL TWA [ppm]	50 ppm
<b>Northwest Territories</b>	OEL STEL [ppm]	62.5 ppm
<b>Northwest Territories</b>	OEL TWA [ppm]	50 ppm
<b>Ontario</b>	OEL TWA [ppm]	50 ppm
<b>Prince Edward Island</b>	OEL TWA [ppm]	50 ppm
<b>Québec</b>	VEMP (OEL TWA)	176 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (OEL TWA) [ppm]	50 ppm
<b>Saskatchewan</b>	OEL STEL [ppm]	62.5 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	50 ppm
<b>Yukon</b>	OEL STEL	450 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL [ppm]	125 ppm
<b>Yukon</b>	OEL TWA	360 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA [ppm]	100 ppm
<b>2-Methylpentane (107-83-5)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Alberta</b>	OEL STEL	3500 mg/m <sup>3</sup> (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL STEL [ppm]	1000 ppm (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL TWA	1760 mg/m <sup>3</sup> (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL TWA [ppm]	500 ppm (Hexane (all isomers except n-Hexane))
<b>British Columbia</b>	OEL TWA [ppm]	200 ppm (Hexane, all isomers except n-Hexane)
<b>Manitoba</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Manitoba</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Nova Scotia</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Nova Scotia</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Ontario</b>	OEL STEL [ppm]	1000 ppm (Hexane, isomers, other than n-Hexane)
<b>Ontario</b>	OEL TWA [ppm]	500 ppm (Hexane, isomers, other than n-Hexane)
<b>Prince Edward Island</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Prince Edward Island</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Nonane (111-84-2)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	200 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA)	1050 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	200 ppm

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<b>Alberta</b>	OEL TWA	1050 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA [ppm]	200 ppm
<b>British Columbia</b>	OEL TWA [ppm]	200 ppm
<b>Manitoba</b>	OEL TWA [ppm]	200 ppm
<b>New Brunswick</b>	OEL TWA	1050 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	200 ppm
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	200 ppm
<b>Nova Scotia</b>	OEL TWA [ppm]	200 ppm
<b>Nunavut</b>	OEL STEL [ppm]	250 ppm (Nonane, all isomers)
<b>Nunavut</b>	OEL TWA [ppm]	200 ppm (Nonane, all isomers)
<b>Northwest Territories</b>	OEL STEL [ppm]	250 ppm (Nonane, all isomers)
<b>Northwest Territories</b>	OEL TWA [ppm]	200 ppm (Nonane, all isomers)
<b>Ontario</b>	OEL TWA [ppm]	200 ppm
<b>Prince Edward Island</b>	OEL TWA [ppm]	200 ppm
<b>Québec</b>	VEMP (OEL TWA)	1050 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (OEL TWA) [ppm]	200 ppm
<b>Saskatchewan</b>	OEL STEL [ppm]	250 ppm
<b>Saskatchewan</b>	OEL TWA [ppm]	200 ppm
<b>Yukon</b>	OEL STEL	1300 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL [ppm]	250 ppm
<b>Yukon</b>	OEL TWA	1050 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA [ppm]	200 ppm

### 3-Methylpentane (96-14-0)

<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Alberta</b>	OEL STEL	3500 mg/m <sup>3</sup>
<b>Alberta</b>	OEL STEL [ppm]	1000 ppm
<b>Alberta</b>	OEL TWA	1760 mg/m <sup>3</sup> (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL TWA [ppm]	500 ppm (Hexane (all isomers except n-Hexane))
<b>British Columbia</b>	OEL TWA [ppm]	200 ppm (Hexane, all isomers except n-Hexane)
<b>Manitoba</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Manitoba</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Nova Scotia</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Nova Scotia</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Ontario</b>	OEL STEL [ppm]	1000 ppm (Hexane, isomers, other than n-Hexane)
<b>Ontario</b>	OEL TWA [ppm]	500 ppm (Hexane, isomers, other than n-Hexane)
<b>Prince Edward Island</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Prince Edward Island</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)

### Neohexane (75-83-2)

<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Alberta</b>	OEL STEL	3500 mg/m <sup>3</sup> (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL STEL [ppm]	1000 ppm (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL TWA	1760 mg/m <sup>3</sup> (Hexane (all isomers except n-Hexane))
<b>Alberta</b>	OEL TWA [ppm]	500 ppm (Hexane (all isomers except n-Hexane))
<b>British Columbia</b>	OEL TWA [ppm]	200 ppm (Hexane, all isomers except n-Hexane)
<b>Manitoba</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Manitoba</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)

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<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Nova Scotia</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Nova Scotia</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Ontario</b>	OEL STEL [ppm]	1000 ppm (Hexane, isomers, other than n-Hexane)
<b>Ontario</b>	OEL TWA [ppm]	500 ppm (Hexane, isomers, other than n-Hexane)
<b>Prince Edward Island</b>	OEL STEL [ppm]	1000 ppm (Hexane isomers other than n-hexane)
<b>Prince Edward Island</b>	OEL TWA [ppm]	500 ppm (Hexane isomers other than n-hexane)
<b>Benzene (71-43-2)</b>		
<b>USA ACGIH</b>	ACGIH OEL TWA [ppm]	0.5 ppm
<b>USA ACGIH</b>	ACGIH OEL STEL [ppm]	2.5 ppm
<b>USA ACGIH</b>	ACGIH chemical category	Confirmed Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route
<b>USA ACGIH</b>	BEI (BLV)	25 µg/g Kreatinin Parameter: S-Phenylmercapturic acid - Medium: urine - Sampling time: end of shift (background) 500 µg/g Kreatinin Parameter: t,t-Muconic acid - Medium: urine - Sampling time: end of shift (background)
<b>USA OSHA</b>	OSHA PEL (TWA) [2]	10 ppm 1 ppm
<b>USA OSHA</b>	OSHA PEL (STEL) [2]	5 ppm (see 29 CFR 1910.1028)
<b>USA OSHA</b>	OSHA PEL C [ppm]	25 ppm
<b>USA OSHA</b>	Acceptable Maximum Peak Above The Acceptable Ceiling Concentration For An 8-Hr Shift	50 ppm Peak (10 minutes)
<b>USA OSHA</b>	OSHA Action Level/Excursion Limit	0.5 ppm (Action Level, see 29 CFR 1910.1028)
<b>USA NIOSH</b>	NIOSH REL TWA [ppm]	0.1 ppm
<b>USA NIOSH</b>	NIOSH REL STEL [ppm]	1 ppm
<b>USA IDLH</b>	IDLH [ppm]	500 ppm
<b>Alberta</b>	OEL STEL	8 mg/m <sup>3</sup>
<b>Alberta</b>	OEL STEL [ppm]	2.5 ppm
<b>Alberta</b>	OEL TWA	1.6 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA [ppm]	0.5 ppm
<b>British Columbia</b>	OEL STEL [ppm]	2.5 ppm
<b>British Columbia</b>	OEL TWA [ppm]	0.5 ppm
<b>Manitoba</b>	OEL STEL [ppm]	2.5 ppm
<b>Manitoba</b>	OEL TWA [ppm]	0.5 ppm
<b>New Brunswick</b>	OEL STEL	8 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL STEL [ppm]	2.5 ppm
<b>New Brunswick</b>	OEL TWA	1.6 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA [ppm]	0.5 ppm
<b>Newfoundland &amp; Labrador</b>	OEL STEL [ppm]	2.5 ppm
<b>Newfoundland &amp; Labrador</b>	OEL TWA [ppm]	0.5 ppm
<b>Nova Scotia</b>	OEL STEL [ppm]	2.5 ppm
<b>Nova Scotia</b>	OEL TWA [ppm]	0.5 ppm
<b>Ontario</b>	OEL STEL [ppm]	2.5 ppm (designated substances regulation) 2.5 ppm (applies to workplaces to which the designated substances regulation does not apply)
<b>Ontario</b>	OEL TWA [ppm]	0.5 ppm (applies to workplaces to which the designated substances regulation does not apply) 0.5 ppm (designated substances regulation)
<b>Prince Edward Island</b>	OEL STEL [ppm]	2.5 ppm
<b>Prince Edward Island</b>	OEL TWA [ppm]	0.5 ppm
<b>Québec</b>	VECD (OEL STEL)	15.5 mg/m <sup>3</sup>

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Québec	VECD (OEL STEL) [ppm]	5 ppm
Québec	VEMP (OEL TWA)	3 mg/m <sup>3</sup>
Québec	VEMP (OEL TWA) [ppm]	1 ppm
Yukon	OEL C	32 mg/m <sup>3</sup>
Yukon	OEL Ceiling [ppm]	10 ppm
<b>Hydrogen sulfide (7783-06-4)</b>		
USA ACGIH	ACGIH OEL TWA [ppm]	1 ppm
USA ACGIH	ACGIH OEL STEL [ppm]	5 ppm
USA OSHA	OSHA PEL C [ppm]	20 ppm
USA OSHA	Acceptable Maximum Peak Above The Acceptable Ceiling Concentration For An 8-Hr Shift	50 ppm Peak (10 minutes once, only if no other measurable exposure occurs)
USA NIOSH	NIOSH REL (Ceiling)	15 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL C [ppm]	10 ppm
USA IDLH	IDLH [ppm]	100 ppm
Alberta	OEL C	21 mg/m <sup>3</sup>
Alberta	OEL Ceiling [ppm]	15 ppm
Alberta	OEL TWA	14 mg/m <sup>3</sup>
Alberta	OEL TWA [ppm]	10 ppm
British Columbia	OEL Ceiling [ppm]	10 ppm
Manitoba	OEL STEL [ppm]	5 ppm
Manitoba	OEL TWA [ppm]	1 ppm
New Brunswick	OEL STEL	21 mg/m <sup>3</sup>
New Brunswick	OEL STEL [ppm]	15 ppm
New Brunswick	OEL TWA	14 mg/m <sup>3</sup>
New Brunswick	OEL TWA [ppm]	10 ppm
Newfoundland & Labrador	OEL STEL [ppm]	5 ppm
Newfoundland & Labrador	OEL TWA [ppm]	1 ppm
Nova Scotia	OEL STEL [ppm]	5 ppm
Nova Scotia	OEL TWA [ppm]	1 ppm
Nunavut	OEL STEL [ppm]	15 ppm
Nunavut	OEL TWA [ppm]	10 ppm
Northwest Territories	OEL STEL [ppm]	15 ppm
Northwest Territories	OEL TWA [ppm]	10 ppm
Ontario	OEL STEL [ppm]	15 ppm
Ontario	OEL TWA [ppm]	10 ppm
Prince Edward Island	OEL STEL [ppm]	5 ppm
Prince Edward Island	OEL TWA [ppm]	1 ppm
Québec	VECD (OEL STEL)	21 mg/m <sup>3</sup>
Québec	VECD (OEL STEL) [ppm]	15 ppm
Québec	VEMP (OEL TWA)	14 mg/m <sup>3</sup>
Québec	VEMP (OEL TWA) [ppm]	10 ppm
Saskatchewan	OEL STEL [ppm]	15 ppm
Saskatchewan	OEL TWA [ppm]	10 ppm
Yukon	OEL STEL	27 mg/m <sup>3</sup>
Yukon	OEL STEL [ppm]	15 ppm
Yukon	OEL TWA	15 mg/m <sup>3</sup>
Yukon	OEL TWA [ppm]	10 ppm
<b>Nonanes</b>		
Alberta	OEL TWA	1050 mg/m <sup>3</sup>
Alberta	OEL TWA [ppm]	200 ppm

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Nunavut	OEL STEL [ppm]	250 ppm
Nunavut	OEL TWA [ppm]	200 ppm
Northwest Territories	OEL STEL [ppm]	250 ppm
Northwest Territories	OEL TWA [ppm]	200 ppm
Saskatchewan	OEL STEL [ppm]	250 ppm
Saskatchewan	OEL TWA [ppm]	200 ppm
<b>Aliphatic hydrocarbon gases: Alkanes (C1-4)</b>		
Nunavut	OEL STEL [ppm]	1250 ppm
Nunavut	OEL TWA [ppm]	1000 ppm
Northwest Territories	OEL STEL [ppm]	1250 ppm
Northwest Territories	OEL TWA [ppm]	1000 ppm
Saskatchewan	OEL STEL [ppm]	1250 ppm
Saskatchewan	OEL TWA [ppm]	1000 ppm
<b>Aliphatic hydrocarbon gases, alkane (C2-4)</b>		
Alberta	OEL TWA [ppm]	1000 ppm
<b>Heptane isomers</b>		
USA ACGIH	ACGIH OEL TWA [ppm]	400 ppm
USA ACGIH	ACGIH OEL STEL [ppm]	500 ppm
Manitoba	OEL STEL [ppm]	500 ppm
Manitoba	OEL TWA [ppm]	400 ppm
Newfoundland & Labrador	OEL STEL [ppm]	500 ppm
Newfoundland & Labrador	OEL TWA [ppm]	400 ppm
Nova Scotia	OEL STEL [ppm]	500 ppm
Nova Scotia	OEL TWA [ppm]	400 ppm
Prince Edward Island	OEL STEL [ppm]	500 ppm
Prince Edward Island	OEL TWA [ppm]	400 ppm
<b>Octanes</b>		
USA ACGIH	ACGIH OEL TWA [ppm]	300 ppm
Alberta	OEL TWA	1400 mg/m <sup>3</sup>
Alberta	OEL TWA [ppm]	300 ppm
British Columbia	OEL TWA [ppm]	300 ppm
Manitoba	OEL TWA [ppm]	300 ppm
Newfoundland & Labrador	OEL TWA [ppm]	300 ppm
Nova Scotia	OEL TWA [ppm]	300 ppm
Nunavut	OEL STEL [ppm]	375 ppm
Nunavut	OEL TWA [ppm]	300 ppm
Northwest Territories	OEL STEL [ppm]	375 ppm
Northwest Territories	OEL TWA [ppm]	300 ppm
Prince Edward Island	OEL TWA [ppm]	300 ppm
Saskatchewan	OEL STEL [ppm]	375 ppm
Saskatchewan	OEL TWA [ppm]	300 ppm

## 8.2. Exposure Controls

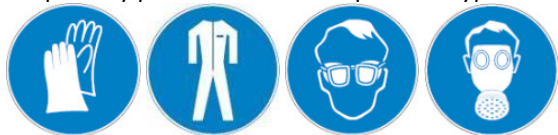
**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Use explosion-proof equipment. Proper grounding procedures to avoid static electricity should be followed. Gas detectors should be used when flammable gases or vapors may be released. Oxygen detectors should be used when asphyxiating gases may be released.

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**Personal Protective Equipment:** Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection. Respiratory protection of the dependent type.



**Materials for Protective Clothing:** Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

**Hand Protection:** Wear protective gloves. If material is cold, wear thermally resistant protective gloves.

**Eye and Face Protection:** Faceshield as determined by task. Chemical safety goggles.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

**Thermal Hazard Protection:** Wear thermally resistant protective clothing.

**Other Information:** When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Gas
Appearance	: Colorless
Odor	: Gasoline-like or natural gas odor. May contain hydrogen sulfide, which has a rotten egg odor
Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: -73 °C (-99.4 °F)
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Extremely flammable gas
Lower Flammable Limit	: No data available
Upper Flammable Limit	: No data available
Vapor Pressure	: 7757 – 10343 mm Hg (150 - 200 psia)
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Density	: 0.5 – 0.7 g/cm <sup>3</sup> (4.17 - 5.84 lbs/gal Estimated Range)
Specific Gravity	: No data available
Solubility	: Water: Not miscible or difficult to mix
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available
Explosive Properties	: Contains gas under pressure; may explode if heated

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity:

Hazardous reactions will not occur under normal conditions.

### 10.2. Chemical Stability:

Contains gas under pressure; may explode if heated.

### 10.3. Possibility of Hazardous Reactions:

Hazardous polymerization will not occur.

### 10.4. Conditions to Avoid:

Direct sunlight, extremely high or low temperatures, open flames, sources of ignition and incompatible materials.

### 10.5. Incompatible Materials:

Strong acids, strong bases, strong oxidizers.

### 10.6. Hazardous Decomposition Products:

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Thermal decomposition may produce: Carbon Oxides, Sulfur Oxides, Hydrocarbon Vapors, Smoke. Contains Sulfur, may release small amounts of hydrogen sulfide. Hydrogen sulfide is a highly flammable, explosive gas under certain conditions, is a toxic gas, and may be fatal. Gas can accumulate in the headspace of closed containers, use caution when opening sealed containers. Heating the product or containers can cause thermal decomposition of the product and release hydrogen sulfide.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Information on Toxicological Effects - Product

**Acute Toxicity (Oral):** Not classified

**Acute Toxicity (Dermal):** Not classified

**Acute Toxicity (Inhalation):** Not classified

#### LD50 and LC50 Data:

No additional information available

**Skin Corrosion/Irritation:** Causes skin irritation.

**Eye Damage/Irritation:** Not classified

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** May cause genetic defects.

**Carcinogenicity:** May cause cancer.

**Specific Target Organ Toxicity (Repeated Exposure):** May cause damage to organs through prolonged or repeated exposure.

**Reproductive Toxicity:** Suspected of damaging fertility or the unborn child.

**Specific Target Organ Toxicity (Single Exposure):** May cause drowsiness or dizziness.

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Hydrogen sulfide may cause respiratory paralysis. High concentrations may cause central nervous system depression such as dizziness, vomiting, numbness, drowsiness, headache, and similar narcotic symptoms. In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

**Symptoms/Injuries After Skin Contact:** Contact with gas/liquid escaping the container can cause frostbite and freeze burns. Redness, pain, swelling, itching, burning, dryness, and dermatitis.

**Symptoms/Injuries After Eye Contact:** Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

**Symptoms/Injuries After Ingestion:** Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite.

**Chronic Symptoms:** Contains a small amount of Hydrogen Sulfide, symptoms of chronic exposure that may manifest as long-term or permanent effects are: headaches, dizziness, nausea, coughing, respiratory irritation, eye irritation, skin irritation, pain in the nose, and loss of consciousness. . May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May cause genetic defects.

#### 11.2. Information on Toxicological Effects - Ingredient(s)

##### LD50 and LC50 Data:

<b>Natural gas, petroleum, raw liquid mix (64741-48-6)</b>	
LD50 Dermal Rabbit	> 6000 mg/kg
LC50 Inhalation Rat	> 7630 mg/m <sup>3</sup> (Exposure time: 4 h)
<b>Propane (74-98-6)</b>	
LC50 Inhalation Rat	> 800000 ppm (Exposure time: 15 min)
<b>n-Heptane (142-82-5)</b>	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	> 73.5 mg/L/4h
<b>n-Butane (106-97-8)</b>	
LC50 Inhalation Rat	30957 mg/m <sup>3</sup> (Exposure time: 4 h)
LC50 Inhalation Rat	276798.8 ppm
<b>Ethane (74-84-0)</b>	
LC50 Inhalation Rat	> 800000 ppm/4h
<b>Octane (111-65-9)</b>	

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LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 24.88 mg/L/4h
<b>n-Pentane (109-66-0)</b>	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	364 g/m <sup>3</sup> (Exposure time: 4 h)
LC50 Inhalation Rat	> 20 mg/L/4h
<b>Hexane (110-54-3)</b>	
LD50 Oral Rat	25 g/kg
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	169 mg/L/4h
LC50 Inhalation Rat	48000 ppm/4h
<b>Decane (124-18-5)</b>	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 1369 ppm (Exposure time: 8 h)
<b>Nonane (111-84-2)</b>	
LC50 Inhalation Rat	16.75 mg/L/4h
LC50 Inhalation Rat	3200 ppm/4h
<b>Neohexane (75-83-2)</b>	
LD50 Dermal Rabbit	> 5 ml/kg
<b>Benzene (71-43-2)</b>	
LD50 Oral Rat	810 mg/kg
LD50 Dermal Rabbit	> 8200 mg/kg
LC50 Inhalation Rat	44.66 mg/L/4h
<b>Hydrogen sulfide (7783-06-4)</b>	
LC50 Inhalation Rat	444 ppm/4h
<b>Benzene (71-43-2)</b>	
IARC Group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens, Evidence of Carcinogenicity.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.
OSHA Specifically Regulated Carcinogen List	In OSHA Specifically Regulated Carcinogen list.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

Ecology - General: Very toxic to aquatic life with long lasting effects.

<b>n-Heptane (142-82-5)</b>	
LC50 Fish 1	375 mg/L (Exposure time: 96 h - Species: Cichlid fish)
EC50 - Crustacea [1]	0.1 mg/L
<b>Isopentane (78-78-4)</b>	
EC50 - Crustacea [1]	2.3 mg/L (Exposure time: 48 h - Species: Daphnia magna)
<b>Octane (111-65-9)</b>	
EC50 - Crustacea [1]	0.38 mg/L (Exposure time: 48 h - Species: water flea)
NOEC Chronic Fish	0.028 mg/L
<b>n-Pentane (109-66-0)</b>	
LC50 Fish 1	9.87 mg/L (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 - Crustacea [1]	9.74 mg/L (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	11.59 mg/L (Exposure time: 96 h - Species: Pimephales promelas)
NOEC Chronic Algae	2 mg/L
<b>Hexane (110-54-3)</b>	

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LC50 Fish 1	2.1 – 2.98 mg/L (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea [1]	3.88 mg/L
<b>Decane (124-18-5)</b>	
LC50 Fish 1	> 1000 mg/L
<b>Nonane (111-84-2)</b>	
EC50 - Crustacea [1]	0.2 mg/L
<b>Benzene (71-43-2)</b>	
LC50 Fish 1	10.7 – 14.7 mg/L (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea [1]	8.76 – 15.6 mg/L (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 Fish 2	5.3 mg/L (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 - Crustacea [2]	10 mg/L (Exposure time: 48 h - Species: Daphnia magna)
ErC50 algae	29 mg/L
NOEC Chronic Fish	0.8 mg/L
<b>Hydrogen sulfide (7783-06-4)</b>	
LC50 Fish 1	0.0448 mg/L (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
LC50 Fish 2	0.016 mg/L (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

### 12.2. Persistence and Degradability

<b>Natural Gas Liquids</b>	
Persistence and Degradability	May cause long-term adverse effects in the environment.

### 12.3. Bioaccumulative Potential

<b>Natural Gas Liquids</b>	
Bioaccumulative Potential	Not established.

<b>Propane (74-98-6)</b>	
Partition coefficient n-octanol/water (Log Pow)	1.09 at 20 °C / 68 °F (at pH 7)

<b>n-Heptane (142-82-5)</b>	
Partition coefficient n-octanol/water (Log Pow)	4.66

<b>n-Butane (106-97-8)</b>	
Partition coefficient n-octanol/water (Log Pow)	2.31 at 20 °C / 68 °F (at pH 7)

<b>Isopentane (78-78-4)</b>	
Partition coefficient n-octanol/water (Log Pow)	4 at 25 °C / 77 °F (at pH 6.6)

<b>Isobutane (75-28-5)</b>	
BCF Fish 1	1.57 – 1.97
Partition coefficient n-octanol/water (Log Pow)	1.09 – 2.8 at 20 °C / 68 °F (at pH 7)

<b>Ethane (74-84-0)</b>	
Partition coefficient n-octanol/water (Log Pow)	1.09 – 2.8 at 20 °C / 68 °F (at pH 7)

<b>Octane (111-65-9)</b>	
Partition coefficient n-octanol/water (Log Pow)	5.18

<b>n-Pentane (109-66-0)</b>	
Partition coefficient n-octanol/water (Log Pow)	3.45 at 25 °C / 77 °F (at pH 7)

<b>Hexane (110-54-3)</b>	
Partition coefficient n-octanol/water (Log Pow)	4 at 20 °C / 68 °F (at pH 7)

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<b>Decane (124-18-5)</b>	
<b>Partition coefficient n-octanol/water (Log Pow)</b>	5.1 (at 20 °C / 68 °F)
<b>Neohexane (75-83-2)</b>	
<b>Partition coefficient n-octanol/water (Log Pow)</b>	3.8
<b>Benzene (71-43-2)</b>	
<b>BCF Fish 1</b>	3.5 – 4.4
<b>Partition coefficient n-octanol/water (Log Pow)</b>	2.13
<b>Hydrogen sulfide (7783-06-4)</b>	
<b>BCF Fish 1</b>	(no bioaccumulation expected)
<b>Partition coefficient n-octanol/water (Log Pow)</b>	0.45 (at 25 °C / 77 °F)

### 12.4. Mobility in Soil

No additional information available

### 12.5. Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

**Additional Information:** Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.

**Ecology - Waste Materials:** Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

### 14.1. In Accordance with DOT

**Proper Shipping Name** : PETROLEUM GASES, LIQUEFIED  
**Hazard Class** : 2.1  
**Identification Number** : UN1075  
**Label Codes** : 2.1  
**Marine Pollutant** : Marine pollutant  
**ERG Number** : 115



### 14.2. In Accordance with IMDG

**Proper Shipping Name** : PETROLEUM GASES, LIQUEFIED  
**Hazard Class** : 2.1  
**Identification Number** : UN1075  
**Label Codes** : 2.1  
**EmS-No. (Fire)** : F-D  
**EmS-No. (Spillage)** : S-U  
**Marine pollutant** : Marine pollutant



### 14.3. In Accordance with IATA

**Proper Shipping Name** : PETROLEUM GASES, LIQUEFIED  
**Hazard Class** : 2.1  
**Identification Number** : UN1075  
**Label Codes** : 2.1  
**ERG Code (IATA)** : 10L



### 14.4. In Accordance with TDG

# Natural Gas Liquids

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

**Proper Shipping Name** : PETROLEUM GASES, LIQUEFIED  
**Hazard Class** : 2.1  
**Identification Number** : UN1075  
**Label Codes** : 2.1  
**Marine Pollutant (TDG)** : Marine pollutant



## SECTION 15: REGULATORY INFORMATION

### 15.1. US Federal Regulations

<b>Natural Gas Liquids</b>	
<b>SARA Section 311/312 Hazard Classes</b>	Physical hazard - Flammable (gases, aerosols, liquids, or solids) Physical hazard - Gas under pressure Health hazard - Specific target organ toxicity (single or repeated exposure) Health hazard - Carcinogenicity Health hazard - Reproductive toxicity Health hazard - Skin corrosion or Irritation Health hazard - Germ cell mutagenicity Health hazard - Simple asphyxiant
<b>Natural gas, petroleum, raw liquid mix (64741-48-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Propane (74-98-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>n-Heptane (142-82-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>n-Butane (106-97-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Isopentane (78-78-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Isobutane (75-28-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Ethane (74-84-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Octane (111-65-9)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>n-Pentane (109-66-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Hexane (110-54-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	5000 lb
<b>SARA Section 313 - Emission Reporting</b>	1 %
<b>2-Methylpentane (107-83-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Decane (124-18-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Nonane (111-84-2)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>EPA TSCA Regulatory Flag</b>	T - T - indicates a substance that is the subject of a final TSCA section 4 test rule.
<b>3-Methylpentane (96-14-0)</b>	

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Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Neohexane (75-83-2)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Benzene (71-43-2)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	10 lb
<b>SARA Section 313 - Emission Reporting</b>	0.1 %
<b>Hydrogen sulfide (7783-06-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Listed on the United States SARA Section 302	
Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	100 lb
<b>SARA Section 302 Threshold Planning Quantity (TPQ)</b>	500 lb
<b>SARA Section 313 - Emission Reporting</b>	1 %
<b>D018-Unlisted hazardous wastes characteristic of toxicity (benzene)</b>	
<b>CERCLA RQ</b>	10 lb

### 15.2. US State Regulations

#### California Proposition 65



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

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Hexane (110-54-3)				X
Benzene (71-43-2)	X	X		X

<b>Propane (74-98-6)</b>
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
<b>n-Heptane (142-82-5)</b>
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
<b>n-Butane (106-97-8)</b>
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
<b>Isopentane (78-78-4)</b>
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
<b>Isobutane (75-28-5)</b>
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
<b>Ethane (74-84-0)</b>
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
<b>Octane (111-65-9)</b>

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U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **n-Pentane (109-66-0)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **Hexane (110-54-3)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **2-Methylpentane (107-83-5)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **Decane (124-18-5)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

### **Nonane (111-84-2)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **3-Methylpentane (96-14-0)**

U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **Neohexane (75-83-2)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### **Benzene (71-43-2)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List  
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

### **Hydrogen sulfide (7783-06-4)**

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

## 15.3. Canadian Regulations

### **Natural gas, petroleum, raw liquid mix (64741-48-6)**

Listed on the Canadian DSL (Domestic Substances List)

### **Propane (74-98-6)**

Listed on the Canadian DSL (Domestic Substances List)

### **n-Heptane (142-82-5)**

Listed on the Canadian DSL (Domestic Substances List)

### **n-Butane (106-97-8)**

Listed on the Canadian DSL (Domestic Substances List)

# Natural Gas Liquids

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<b>Isopentane (78-78-4)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Isobutane (75-28-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Ethane (74-84-0)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Octane (111-65-9)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>n-Pentane (109-66-0)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Hexane (110-54-3)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>2-Methylpentane (107-83-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Decane (124-18-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Nonane (111-84-2)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>3-Methylpentane (96-14-0)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Neohexane (75-83-2)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Benzene (71-43-2)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Hydrogen sulfide (7783-06-4)</b>
Listed on the Canadian DSL (Domestic Substances List)

### SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Date of Preparation or Latest Revision** : 03/23/2023

**Revision**

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

#### GHS Full Text Phrases:

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
H319	Causes serious eye irritation
H330	Fatal 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

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H370	Causes damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

NA GHS SDS 2015 (Can, US)