

Natural Gas Liquids

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations
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Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Natural Gas Liquids

Synonyms: Natural Gas Liquids, Raw; Raw NGLs; Gas Liquids

1.2. Intended Use of the Product

Industrial Heating.

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

Company

Ferus Natural Gas Fuels (CNG), LLC
Three Chasewood Technology Park
20445 State Highway 249, Suite 250
Houston, TX 77070
T: 832-709-0750

Manufacturer

Ferus Natural Gas Fuels (CNG), LLC
5812 Jefferson Lane
Williston, ND 58801
T: 701-713-3300
www.ferus.com

1.4. Emergency Telephone Number

Emergency Number : 1-855-903-3787

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US classification

Simple Asphy

Flam. Gas 1 H220

Liquefied gas H280

Acute Tox. 4 (Inhalation:gas) H332

Skin Irrit. 2 H315

Repr. 2 H361

STOT SE 3 H335

STOT RE 2 H373

Aquatic Acute 1 H400

Aquatic Chronic 2 H411

Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

Hazard Statements (GHS-US)

- : Danger
- : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
H315 - Causes skin irritation.
H332 - Harmful if inhaled.
H335 - May cause respiratory irritation.
H361 - Suspected of damaging fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
May displace oxygen and cause rapid suffocation.
H400 - Very 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.

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P210 - Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking.
P260 - Do not breathe gas.
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 at rest in a position 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 - Eliminate all ignition sources if safe to do so.
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, provincial, territorial and international regulations.

2.3. Other Hazards

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. 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)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixture

Name	Product Identifier	% (w/w)	GHS-US classification
Butane	(CAS No) 106-97-8	30 - 35	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280
Propane	(CAS No) 74-98-6	20 - 25	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280
Pentane	(CAS No) 109-66-0	10 - 15	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Isobutane	(CAS No) 75-28-5	5 - 10	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
Isopentane	(CAS No) 78-78-4	5 - 10	Flam. Liq. 1, H224

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			STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Decane	(CAS No) 124-18-5	<0.1, 0.1-1, 1-5, 5-10	Flam. Liq. 3, H226 Asp. Tox. 1, H304
Hydrogen sulfide	(CAS No) 7783-06-4	<0.1, 0.1-1, 1-5	Flam. Gas 1, H220 Liquefied gas, H280 Acute Tox. 2 (Inhalation:gas), H330 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Acute 1, H400
Ethane	(CAS No) 74-84-0	3 - 5	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280
Hexane	(CAS No) 110-54-3	<0.1, 0.1-1, 1-5	Flam. Liq. 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
n-Heptane	(CAS No) 142-82-5	<0.1, 0.1-1, 1-5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Octane	(CAS No) 111-65-9	<0.1, 0.1-1, 1-5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

*The specific chemical identity and/or exact percentage of composition have been withheld as a trade secret within the meaning of the OSHA Hazard Communication Standard [29 CFR 1910.1200].

*More than one of the ranges of concentration prescribed by Controlled Products Regulations has been used where necessary, due to varying composition.

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention. Obtain medical attention if breathing difficulty persists. 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.

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Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

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

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: May cause frostbite on contact with the liquid. Causes skin irritation. May cause respiratory irritation. Harmful if inhaled. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Asphyxia by lack of oxygen: risk of death.

Inhalation: Irritation of the respiratory tract and the other mucous membranes. Inhalation is likely to cause adverse health effects including but not limited to: irritation, difficulty breathing, and unconsciousness. 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. WARNING: irritating and toxic hydrogen sulfide gas may be present. Greater than 15-20ppm continuous exposure can cause mucous membrane and respiratory tract irritation. 50-500ppm can cause headache, nausea, and dizziness. Continued exposure at these levels can lead to loss of reasoning and balance, difficulty in breathing, fluid in the lungs, and possible loss of consciousness. Greater than 500ppm can cause rapid unconsciousness and death if not promptly revived.

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: Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

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: 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. Under fire conditions closed containers may rupture or explode. Under fire conditions, hazardous fumes will be present.

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.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, sulfur oxides, hydrogen sulfide, sulfur oxides.

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

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. 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 protection equipment (PPE).

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Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: 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. Evacuate unnecessary personnel, isolate, and ventilate area. Ventilate area.

6.2. Environmental Precautions

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

6.3. Methods and Material for Containment and Cleaning Up

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

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. 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.

6.4. Reference to Other Sections

See Heading 8. Exposure controls and personal protection. See Section 13, Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: 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. Avoid contact with eyes, skin and clothing. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do NOT breathe (gas).

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.

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

Storage Area: Hydrogen sulfide vapors may be evolved from long-term heated storage and/or agitated transport. H₂S is corrosive to most metals. It can cause steel pipe to become blistered, pitted, and brittle. Metal components used for storage should be resistant to sulfide stress cracking. (See appropriate API and NACE standards.) Where H₂S is routinely stored, install monitoring equipment or system with alarms.

7.3. Specific End Use(s)

Industrial Heating.

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), Canadian provincial governments, or the Mexican government.

Hydrogen sulfide (7783-06-4)		
USA ACGIH	ACGIH TWA (ppm)	1 ppm
USA ACGIH	ACGIH STEL (ppm)	5 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	20 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	15 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (ppm)	10 ppm
USA IDLH	US IDLH (ppm)	100 ppm
Alberta	OEL Ceiling (mg/m ³)	21 mg/m ³
Alberta	OEL Ceiling (ppm)	15 ppm
Alberta	OEL TWA (mg/m ³)	14 mg/m ³

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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 (mg/m ³)	21 mg/m ³
New Brunswick	OEL STEL (ppm)	15 ppm
New Brunswick	OEL TWA (mg/m ³)	14 mg/m ³
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 Ceiling (mg/m ³)	28 mg/m ³
Nunavut	OEL Ceiling (ppm)	20 ppm
Nunavut	OEL STEL (mg/m ³)	21 mg/m ³
Nunavut	OEL STEL (ppm)	15 ppm
Nunavut	OEL TWA (mg/m ³)	14 mg/m ³
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 (mg/m ³)	21 mg/m ³
Québec	VECD (ppm)	15 ppm
Québec	VEMP (mg/m ³)	14 mg/m ³
Québec	VEMP (ppm)	10 ppm
Saskatchewan	OEL STEL (ppm)	15 ppm
Saskatchewan	OEL TWA (ppm)	10 ppm
Yukon	OEL STEL (mg/m ³)	27 mg/m ³
Yukon	OEL STEL (ppm)	15 ppm
Yukon	OEL TWA (mg/m ³)	15 mg/m ³
Yukon	OEL TWA (ppm)	10 ppm
Ethane (74-84-0)		
Alberta	OEL TWA (ppm)	1000 ppm
British Columbia	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
Propane (74-98-6)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1800 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1800 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA IDLH	US IDLH (ppm)	2100 ppm (10% LEL)
Alberta	OEL TWA (ppm)	1000 ppm
British Columbia	OEL TWA (ppm)	1000 ppm
Northwest Territories	OEL STEL (ppm)	1250 ppm
Northwest Territories	OEL TWA (ppm)	1000 ppm

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Québec	VEMP (mg/m ³)	1800 mg/m ³
Québec	VEMP (ppm)	1000 ppm
Saskatchewan	OEL STEL (ppm)	1250 ppm
Saskatchewan	OEL TWA (ppm)	1000 ppm
Isobutane (75-28-5)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1900 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
Manitoba	OEL STEL (ppm)	1000 ppm
Newfoundland & Labrador	OEL STEL (ppm)	1000 ppm
Nova Scotia	OEL STEL (ppm)	1000 ppm
Northwest Territories	OEL STEL (ppm)	1250 ppm
Northwest Territories	OEL TWA (ppm)	1000 ppm
Ontario	OEL STEL (ppm)	1000 ppm
Ontario	OEL TWA (ppm)	800 ppm
Prince Edward Island	OEL STEL (ppm)	1000 ppm
Saskatchewan	OEL STEL (ppm)	1250 ppm
Saskatchewan	OEL TWA (ppm)	1000 ppm
Butane (106-97-8)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1900 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
Alberta	OEL TWA (ppm)	1000 ppm
British Columbia	OEL STEL (ppm)	750 ppm
British Columbia	OEL TWA (ppm)	600 ppm
Manitoba	OEL STEL (ppm)	1000 ppm
New Brunswick	OEL TWA (mg/m ³)	1900 mg/m ³
New Brunswick	OEL TWA (ppm)	800 ppm
Newfoundland & Labrador	OEL STEL (ppm)	1000 ppm
Nova Scotia	OEL STEL (ppm)	1000 ppm
Nunavut	OEL STEL (mg/m ³)	2576 mg/m ³
Nunavut	OEL STEL (ppm)	1000 ppm
Nunavut	OEL TWA (mg/m ³)	1901 mg/m ³
Nunavut	OEL TWA (ppm)	800 ppm
Northwest Territories	OEL STEL (ppm)	1250 ppm
Northwest Territories	OEL TWA (ppm)	1000 ppm
Ontario	OEL STEL (ppm)	1000 ppm
Ontario	OEL TWA (ppm)	800 ppm
Prince Edward Island	OEL STEL (ppm)	1000 ppm
Québec	VEMP (mg/m ³)	1900 mg/m ³
Québec	VEMP (ppm)	800 ppm
Saskatchewan	OEL STEL (ppm)	1250 ppm
Saskatchewan	OEL TWA (ppm)	1000 ppm
Yukon	OEL STEL (mg/m ³)	1600 mg/m ³
Yukon	OEL STEL (ppm)	750 ppm
Yukon	OEL TWA (mg/m ³)	1400 mg/m ³
Yukon	OEL TWA (ppm)	600 ppm
Isopentane (78-78-4)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
Alberta	OEL TWA (mg/m ³)	1770 mg/m ³
Alberta	OEL TWA (ppm)	600 ppm

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British Columbia	OEL TWA (ppm)	600 ppm
Manitoba	OEL TWA (ppm)	1000 ppm
Newfoundland & Labrador	OEL TWA (ppm)	1000 ppm
Nova Scotia	OEL TWA (ppm)	1000 ppm
Northwest Territories	OEL STEL (ppm)	750 ppm
Northwest Territories	OEL TWA (ppm)	600 ppm
Ontario	OEL TWA (ppm)	600 ppm
Prince Edward Island	OEL TWA (ppm)	1000 ppm
Saskatchewan	OEL STEL (ppm)	750 ppm
Saskatchewan	OEL TWA (ppm)	600 ppm
Pentane (109-66-0)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2950 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	350 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	120 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	1800 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (ppm)	610 ppm
USA IDLH	US IDLH (ppm)	1500 ppm (10% LEL)
Alberta	OEL TWA (mg/m ³)	1770 mg/m ³
Alberta	OEL TWA (ppm)	600 ppm
British Columbia	OEL TWA (ppm)	600 ppm
Manitoba	OEL TWA (ppm)	1000 ppm
New Brunswick	OEL STEL (mg/m ³)	2210 mg/m ³
New Brunswick	OEL STEL (ppm)	750 ppm
New Brunswick	OEL TWA (mg/m ³)	1770 mg/m ³
New Brunswick	OEL TWA (ppm)	600 ppm
Newfoundland & Labrador	OEL TWA (ppm)	1000 ppm
Nova Scotia	OEL TWA (ppm)	1000 ppm
Nunavut	OEL STEL (mg/m ³)	2213 mg/m ³
Nunavut	OEL STEL (ppm)	750 ppm
Nunavut	OEL TWA (mg/m ³)	1771 mg/m ³
Nunavut	OEL TWA (ppm)	600 ppm
Northwest Territories	OEL STEL (ppm)	750 ppm
Northwest Territories	OEL TWA (ppm)	600 ppm
Ontario	OEL TWA (ppm)	600 ppm
Prince Edward Island	OEL TWA (ppm)	1000 ppm
Québec	VEMP (mg/m ³)	350 mg/m ³
Québec	VEMP (ppm)	120 ppm
Saskatchewan	OEL STEL (ppm)	750 ppm
Saskatchewan	OEL TWA (ppm)	600 ppm
Yukon	OEL STEL (mg/m ³)	2250 mg/m ³
Yukon	OEL STEL (ppm)	750 ppm
Yukon	OEL TWA (mg/m ³)	1800 mg/m ³
Yukon	OEL TWA (ppm)	600 ppm
Hexane (110-54-3)		
USA ACGIH	ACGIH TWA (ppm)	50 ppm
USA ACGIH	ACGIH chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route
USA ACGIH	Biological Exposure Indices (BEI)	0.4 mg/l (Medium: urine - Time: end of shift at end of workweek - Parameter: 2,5-Hexanedione without

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		hydrolysis)
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1800 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	180 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	50 ppm
USA IDLH	US IDLH (ppm)	1100 ppm (10% LEL)
Alberta	OEL TWA (mg/m ³)	176 mg/m ³
Alberta	OEL TWA (ppm)	50 ppm
British Columbia	OEL TWA (ppm)	20 ppm
Manitoba	OEL TWA (ppm)	50 ppm
New Brunswick	OEL TWA (mg/m ³)	176 mg/m ³
New Brunswick	OEL TWA (ppm)	50 ppm
Newfoundland & Labrador	OEL TWA (ppm)	50 ppm
Nova Scotia	OEL TWA (ppm)	50 ppm
Nunavut	OEL STEL (mg/m ³)	440 mg/m ³
Nunavut	OEL STEL (ppm)	125 ppm
Nunavut	OEL TWA (mg/m ³)	352 mg/m ³
Nunavut	OEL TWA (ppm)	100 ppm
Northwest Territories	OEL STEL (ppm)	62.5 ppm
Northwest Territories	OEL TWA (ppm)	50 ppm
Ontario	OEL TWA (ppm)	50 ppm
Prince Edward Island	OEL TWA (ppm)	50 ppm
Québec	VEMP (mg/m ³)	176 mg/m ³
Québec	VEMP (ppm)	50 ppm
Saskatchewan	OEL STEL (ppm)	62.5 ppm
Saskatchewan	OEL TWA (ppm)	50 ppm
Yukon	OEL STEL (mg/m ³)	450 mg/m ³
Yukon	OEL STEL (ppm)	125 ppm
Yukon	OEL TWA (mg/m ³)	360 mg/m ³
Yukon	OEL TWA (ppm)	100 ppm
n-Heptane (142-82-5)		
USA ACGIH	ACGIH TWA (ppm)	400 ppm
USA ACGIH	ACGIH STEL (ppm)	500 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2000 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	350 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	85 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	1800 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (ppm)	440 ppm
USA IDLH	US IDLH (ppm)	750 ppm
Alberta	OEL STEL (mg/m ³)	2050 mg/m ³
Alberta	OEL STEL (ppm)	500 ppm
Alberta	OEL TWA (mg/m ³)	1640 mg/m ³
Alberta	OEL TWA (ppm)	400 ppm
British Columbia	OEL STEL (ppm)	500 ppm
British Columbia	OEL TWA (ppm)	400 ppm
Manitoba	OEL STEL (ppm)	500 ppm
Manitoba	OEL TWA (ppm)	400 ppm
New Brunswick	OEL STEL (mg/m ³)	2050 mg/m ³
New Brunswick	OEL STEL (ppm)	500 ppm
New Brunswick	OEL TWA (mg/m ³)	1640 mg/m ³

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New Brunswick	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
Nunavut	OEL STEL (mg/m ³)	2049 mg/m ³
Nunavut	OEL STEL (ppm)	500 ppm
Nunavut	OEL TWA (mg/m ³)	1640 mg/m ³
Nunavut	OEL TWA (ppm)	400 ppm
Northwest Territories	OEL STEL (ppm)	500 ppm
Northwest Territories	OEL TWA (ppm)	400 ppm
Ontario	OEL STEL (ppm)	500 ppm
Ontario	OEL TWA (ppm)	400 ppm
Prince Edward Island	OEL STEL (ppm)	500 ppm
Prince Edward Island	OEL TWA (ppm)	400 ppm
Québec	VECD (mg/m ³)	2050 mg/m ³
Québec	VECD (ppm)	500 ppm
Québec	VEMP (mg/m ³)	1640 mg/m ³
Québec	VEMP (ppm)	400 ppm
Saskatchewan	OEL STEL (ppm)	500 ppm
Saskatchewan	OEL TWA (ppm)	400 ppm
Yukon	OEL STEL (mg/m ³)	2000 mg/m ³
Yukon	OEL STEL (ppm)	500 ppm
Yukon	OEL TWA (mg/m ³)	1600 mg/m ³
Yukon	OEL TWA (ppm)	400 ppm
Octane (111-65-9)		
USA ACGIH	ACGIH TWA (ppm)	300 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2350 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	350 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	75 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	1800 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (ppm)	385 ppm
USA IDLH	US IDLH (ppm)	1000 ppm (10% LEL)
Alberta	OEL TWA (mg/m ³)	1400 mg/m ³
Alberta	OEL TWA (ppm)	300 ppm
British Columbia	OEL TWA (ppm)	300 ppm
Manitoba	OEL TWA (ppm)	300 ppm
New Brunswick	OEL STEL (mg/m ³)	1750 mg/m ³
New Brunswick	OEL STEL (ppm)	375 ppm
New Brunswick	OEL TWA (mg/m ³)	1400 mg/m ³
New Brunswick	OEL TWA (ppm)	300 ppm
Newfoundland & Labrador	OEL TWA (ppm)	300 ppm
Nova Scotia	OEL TWA (ppm)	300 ppm
Nunavut	OEL STEL (mg/m ³)	1752 mg/m ³
Nunavut	OEL STEL (ppm)	375 ppm
Nunavut	OEL TWA (mg/m ³)	1402 mg/m ³
Nunavut	OEL TWA (ppm)	300 ppm
Northwest Territories	OEL STEL (ppm)	375 ppm
Northwest Territories	OEL TWA (ppm)	300 ppm
Ontario	OEL TWA (ppm)	300 ppm (all isomers)

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Prince Edward Island	OEL TWA (ppm)	300 ppm
Québec	VECD (mg/m ³)	1750 mg/m ³
Québec	VECD (ppm)	375 ppm
Québec	VEMP (mg/m ³)	1400 mg/m ³
Québec	VEMP (ppm)	300 ppm
Saskatchewan	OEL STEL (ppm)	375 ppm
Saskatchewan	OEL TWA (ppm)	300 ppm
Yukon	OEL STEL (mg/m ³)	1800 mg/m ³
Yukon	OEL STEL (ppm)	375 ppm
Yukon	OEL TWA (mg/m ³)	1450 mg/m ³
Yukon	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. Gas detectors should be used when flammable gases or vapors may be released. Use explosion-proof equipment. Gas detectors should be used when toxic gases may be released. Oxygen detectors should be used when asphyxiating gases may be released.

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/flammable resistant/retardant clothing.

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

Eye Protection: 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	: Not available
Odor	: Not available
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: -4 °C (24.8 °F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Extremely flammable gas
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available

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Relative Density	:	Not available
Specific Gravity	:	Not available
Solubility	:	Not available
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available
Explosive Properties	:	Contains gas under pressure; may explode if heated
Explosion Data – Sensitivity to Mechanical Impact	:	Not expected to present an explosion hazard due to mechanical impact
Explosion Data – Sensitivity to Static Discharge	:	Static discharge could act as an ignition source

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:** Thermal decomposition generates: Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke), hydrogen sulfide and sulfur dioxide. Sulfur oxides are toxic.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity: Inhalation:gas: Harmful if inhaled.

LD50 and LC50 Data:

Natural Gas Liquids	
ATE US (gases)	8,880.00 ppmV/4h

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: May cause birth defects.

Carcinogenicity: Not classified

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 respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. Inhalation is likely to cause adverse health effects including but not limited to: irritation, difficulty breathing, and unconsciousness. 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. **WARNING:** irritating and toxic hydrogen sulfide gas may be present. Greater than 15-20ppm continuous exposure can cause mucous membrane and respiratory tract irritation. 50-500ppm can cause headache, nausea, and dizziness. Continued exposure at these levels can lead to loss of reasoning and balance, difficulty in breathing, fluid in the lungs, and possible loss of consciousness. Greater than 500ppm can cause rapid unconsciousness and death if not promptly revived.

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: Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

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Hydrogen sulfide (7783-06-4)	
LC50 Inhalation Rat	444 ppm/4h
Ethane (74-84-0)	
LC50 Inhalation Rat	658 mg/l/4h
Propane (74-98-6)	
LC50 Inhalation Rat	658 mg/l/4h
Isobutane (75-28-5)	
LC50 Inhalation Rat	658 mg/l/4h
LC50 Inhalation Rat	11000 ppm
Butane (106-97-8)	
LC50 Inhalation Rat	30957 mg/m ³ (Exposure time: 4 h)
Pentane (109-66-0)	
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	364 g/m ³ (Exposure time: 4 h)
LC50 Inhalation Rat	> 20 mg/l/4h
Hexane (110-54-3)	
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
n-Heptane (142-82-5)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	103 g/m ³ (Exposure time: 4 h)
LC50 Inhalation Rat	103.2 mg/l/4h
Octane (111-65-9)	
LC50 Inhalation Rat	118 g/m ³ (Exposure time: 4 h)
LC50 Inhalation Rat	118 mg/l/4h
Decane (124-18-5)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 1369 ppm (Exposure time: 8 h)

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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

Hydrogen sulfide (7783-06-4)	
LC50 Fish 1	0.0448 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
LC 50 Fish 2	0.016 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
Isopentane (78-78-4)	
EC50 Daphnia 1	2.3 mg/l (Exposure time: 48 h - Species: Daphnia magna)
Pentane (109-66-0)	
LC50 Fish 1	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
Hexane (110-54-3)	
LC50 Fish 1	2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3.88 mg/l

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n-Heptane (142-82-5)	
LC50 Fish 1	375.0 mg/l (Exposure time: 96 h - Species: Cichlid fish)
EC50 Daphnia 1	0.1 mg/l
Octane (111-65-9)	
EC50 Daphnia 1	0.38 mg/l (Exposure time: 48 h - Species: water flea)
Decane (124-18-5)	
LC50 Fish 1	> 1000 mg/l
EC50 Daphnia 1	0.029 mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and Degradability

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

12.3. Bioaccumulative Potential

Natural Gas Liquids	
Bioaccumulative Potential	Not established.

Hydrogen sulfide (7783-06-4)	
BCF Fish 1	(no bioaccumulation expected)
Log Pow	0.45 (at 25 °C)

Ethane (74-84-0)	
Log Pow	<= 2.8

Propane (74-98-6)	
Log Pow	2.3

Isobutane (75-28-5)	
BCF Fish 1	1.57 - 1.97
Log Pow	2.88 (at 20 °C)

Butane (106-97-8)	
Log Pow	2.89

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

Pentane (109-66-0)	
Log Pow	3.39

n-Heptane (142-82-5)	
Log Pow	4.66

Octane (111-65-9)	
Log Pow	5.18

Decane (124-18-5)	
Log Pow	5.1 (at 20 °C)

12.4. Mobility in Soil

Not 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, provincial, territorial and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions. 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.

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SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED or Liquefied petroleum gas
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
Division : 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
Identification Number : UN1075
Hazard Class : 2
Label Codes : 2.1
Division : 2.1
ERG Code (IATA) : 10L



14.4. In Accordance with TDG

Proper Shipping Name : PETROLEUM GASES, LIQUEFIED
Hazard Class : 2
Identification Number : UN1075
Label Codes : 2.1
Marine Pollutant (TDG) : Marine pollutant



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Natural Gas Liquids	
SARA Section 311/312 Hazard Classes	Fire hazard Sudden release of pressure hazard Immediate (acute) health hazard Delayed (chronic) health hazard
Hydrogen sulfide (7783-06-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on the United States SARA Section 302	
Subject to reporting requirements of United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	500
SARA Section 313 - Emission Reporting	1.0 %
Ethane (74-84-0)	
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	
Isobutane (75-28-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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Butane (106-97-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Isopentane (78-78-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Pentane (109-66-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
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	
SARA Section 313 - Emission Reporting	1.0 %
n-Heptane (142-82-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
Octane (111-65-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Decane (124-18-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State Regulations

Hydrogen sulfide (7783-06-4)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Ethane (74-84-0)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Propane (74-98-6)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Isobutane (75-28-5)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Butane (106-97-8)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Isopentane (78-78-4)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Pentane (109-66-0)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	


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Hexane (110-54-3)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
n-Heptane (142-82-5)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
Octane (111-65-9)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (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

15.3. Canadian Regulations

Natural Gas Liquids	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
	

Hydrogen sulfide (7783-06-4)	
Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List) IDL Concentration 1 %	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Ethane (74-84-0)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
Propane (74-98-6)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
Isobutane (75-28-5)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas
Butane (106-97-8)	
Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List) IDL Concentration 1 %	
WHMIS Classification	Class A - Compressed Gas

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	Class B Division 1 - Flammable Gas
Isopentane (78-78-4)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid
Pentane (109-66-0)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Hexane (110-54-3)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
n-Heptane (142-82-5)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Octane (111-65-9)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Decane (124-18-5)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 3 - Combustible Liquid

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

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

Revision Date : 11/20/2018
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 2
Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) 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 Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Asp. Tox. 1	Aspiration hazard Category 1
Compressed gas	Gases under pressure Compressed gas
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1

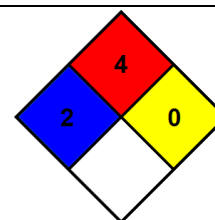
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Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Liquefied gas	Gases under pressure Liquefied gas
Repr. 2	Reproductive toxicity Category 2
Simple Asphy	Simple Asphyxiant
Skin Irrit. 2	Skin corrosion/irritation Category 2
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
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
	May displace oxygen and cause rapid suffocation
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

- 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** : 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.
- NFPA Reactivity** : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



Party Responsible for the Preparation of This Document

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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