## Section 1: IDENTIFICATION

| | |
|---|---|
| **Product Name:** | Propane Odourized |
| **Synonyms:** | Liquefied Petroleum Gas odorized; LPG odorized. |
| **Product Use:** | Feedstock; Fuel. |
| **Restrictions on Use:** | Not available. |
| **Manufacturer/Supplier:** | Pembina Pipeline Corporation<br>4000, 585 - 8th Avenue SW<br>Calgary, Alberta T2P 1G1 |
| **Emergency Phone:** | 1-800-360-4706 |
| **Date of Preparation of SDS:** | September 14, 2016 |

## Section 2: HAZARD(S) IDENTIFICATION

### GHS INFORMATION

**Classification:** Flammable Gases, Category 1
Gases Under Pressure - Liquefied Gas
Simple Asphyxiant

### LABEL ELEMENTS

**Hazard Pictogram(s):**

**Signal Word:** Danger

**Hazard Statements:**
Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

**Precautionary Statements**

**Prevention:** Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.

**Response:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.

**Storage:** Store in a well-ventilated place.
Protect from sunlight.

**Disposal:** Not applicable.

**Hazards Not Otherwise Classified:** Not applicable.

**Ingredients with Unknown Toxicity:** None.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200). This material is considered hazardous by the Hazardous Products Regulations.

## Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

| Hazardous Ingredient(s) | Common name / Synonyms | CAS No. | % vol./vol. |
|---|---|---|---|
| Propane | Not available. | 74-98-6 | 90 - 100 |
| 1-Propene | Propylene | 115-07-1 | 1 - 5 |
| Butane | Not available. | 106-97-8 | 1 - 2.5 |
| Ethanethiol | Ethyl mercaptan | 75-08-1 | < 0.1 |

## Section 4: FIRST-AID MEASURES

**Inhalation:** If inhaled: Call a poison center or doctor if you feel unwell.

**Acute and delayed symptoms and effects:** May displace oxygen and cause rapid suffocation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

**Eye Contact:** If in eyes: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.

**Acute and delayed symptoms and effects:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

**Skin Contact:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. If on skin: Wash with plenty of soap and water. Get immediate medical advice/attention. Thaw frosted parts with lukewarm water. Do not rub affected area. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.

**Acute and delayed symptoms and effects:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

**Ingestion:** Not a normal route of exposure.

**Acute and delayed symptoms and effects:** Not a normal route of exposure.

**General Advice:** In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

**Note to Physicians:** Symptoms may not appear immediately.

## Section 5: FIRE-FIGHTING MEASURES

**FLAMMABILITY AND EXPLOSION INFORMATION**

Extremely flammable gas. Contains gas under pressure; may explode if heated. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through

pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**Sensitivity to Mechanical Impact:** This material is not sensitive to mechanical impact.
**Sensitivity to Static Discharge:** This material is sensitive to static discharge.

**MEANS OF EXTINCTION**

**Suitable Extinguishing Media:** Small Fire: Dry chemical or CO2.

Large Fire: Water spray or fog. Move containers from fire area if you can do it without risk.

**Unsuitable Extinguishing Media:** Not available.

**Products of Combustion:** Oxides of carbon. Oxides of sulphur.

**Protection of Firefighters:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Vapors may cause dizziness or asphyxiation without warning. Some may be irritating if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

## Section 6: ACCIDENTAL RELEASE MEASURES

**Emergency Procedures:** As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded.

**Personal Precautions:** Do not touch or walk through spilled material. Use personal protection recommended in Section 8.

**Environmental Precautions:** Not normally required.

**Methods for Containment:** Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water

runoff to contact spilled material. Do not direct water at spill or source of leak.

**Methods for Clean-Up:** Prevent spreading of vapors through sewers, ventilation systems and confined areas. Isolate area until gas has dispersed. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

**Other Information:** See Section 13 for disposal considerations.

## Section 7: HANDLING AND STORAGE

**Handling:**
Avoid breathing gas. Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Pressurized container: Do not pierce or burn, even after use. See Section 8 for information on Personal Protective Equipment.

**Storage:**
Store in a well-ventilated place. Protect from sunlight. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

## Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Guidelines**
**Component**

Propane [CAS No. 74-98-6]
**ACGIH:** Asphyxia
**OSHA:** 1000 ppm (TWA), 1800 mg/m³ (TWA)

Propylene [CAS No. 115-07-1]
**ACGIH:** 500 ppm (TWA); A4 (2005)
**OSHA:** No PEL established.

Butane [CAS No. 106-97-8]
**ACGIH:** 1000 ppm (TWA); (2012)
**OSHA:** 800 ppm (TWA) [Vacated];

Ethyl mercaptan [CAS No. 75-08-1]
**ACGIH:** 0.5 ppm (TWA); (2003)
**OSHA:** 10 ppm (C), 25 mg/m³ (C);
0.5 ppm (TWA) [Vacated];

**PEL:** Permissible Exposure Limit
**TWA:** Time-Weighted Average
**C:** Ceiling

**Engineering Controls:** Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

| | |
|---|---|
| **Eye/Face Protection:** | Wear cold insulating face shield and eye protection. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3-92 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment. |
| **Hand Protection:** | Wear protective gloves. Wear cold insulating gloves. Consult manufacturer specifications for further information. |
| **Skin and Body Protection:** | Wear protective clothing. |
| **Respiratory Protection:** | If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4-11, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators. |
| **General Hygiene Considerations:** | Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection. |

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance:** | Colourless liquid. |
| **Colour:** | Colourless. |
| **Odour:** | Sulfide odour like garlic or rotting cabbage. |
| **Odour Threshold:** | Not available. |
| **Physical State:** | Gas. |
| **pH:** | Not available. |
| **Melting Point / Freezing Point:** | -189.7 °C (-309.5 °F) (Propane) |
| **Initial Boiling Point:** | Not available. |
| **Boiling Range:** | -42 °C (-43.6 °F) (Propane) |
| **Flash Point:** | -104 °C (-155.2 °F) (Propane) |
| **Evaporation Rate:** | Not available. |
| **Flammability (solid, gas):** | Extremely flammable gas. |
| **Lower Flammability Limit:** | 2.1 % (Propane) |
| **Upper Flammability Limit:** | 9.5 % (Propane) |

| | |
|---|---|
| **Vapor Pressure:** | < 1435.0 kPa (gauge) at 37.8 °C (100 °F) (ASTM D-1267-95/ASTM 323C) |
| **Vapor Density:** | Not available. |
| **Relative Density:** | 0.500 to 0.510 (Water = 1) |
| **Solubilities:** | Slightly soluble in water. |
| **Partition Coefficient: n-Octanol/Water:** | Not available. |
| **Auto-ignition Temperature:** | 450 °C (842 °F) (Propane) |
| **Decomposition Temperature:** | Not available. |
| **Viscosity:** | Not available. |
| **Percent Volatile, wt. %:** | 100 |
| **VOC content, wt. %:** | Not available. |
| **Density:** | Not available. |
| **Coefficient of Water/Oil Distribution:** | Not available. |

## Section 10: STABILITY AND REACTIVITY

| | |
|---|---|
| **Reactivity:** | Contact with incompatible materials. Sources of ignition. Exposure to heat. |
| **Chemical Stability:** | Stable under normal storage conditions. |
| **Possibility of Hazardous Reactions:** | None known. |
| **Conditions to Avoid:** | Contact with incompatible materials. Sources of ignition. Exposure to heat. |
| **Incompatible Materials:** | Oxidizers. |

**Hazardous Decomposition Products:** Not available.

## Section 11: TOXICOLOGICAL INFORMATION

**EFFECTS OF ACUTE EXPOSURE**

**Product Toxicity**

**Oral:** Not available.

**Dermal:** Not available.

**Inhalation:** Not available.

**Component Toxicity**

| Component | CAS No. | $LD_{50}$ oral | $LD_{50}$ dermal | $LC_{50}$ |
|---|---|---|---|---|
| Propane | 74-98-6 | Not available. | Not available. | Not available. |
| Propylene | 115-07-1 | Not available. | Not available. | 86000 mg/m³ (rat); 4H |
| Butane | 106-97-8 | Not available. | Not available. | 658000 mg/m³ (rat); 4H |
| Ethyl mercaptan | 75-08-1 | 682 mg/kg (rat) | Not available. | 2770 ppm (mouse); 4H |

**Likely Routes of Exposure:** Eye contact. Skin contact. Inhalation.

**Target Organs:** Skin. Eyes. Respiratory system. Blood. Liver. Kidneys. Central nervous system.

**Symptoms (including delayed and immediate effects)**

**Inhalation:** May displace oxygen and cause rapid suffocation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

**Eye:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

**Skin:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

**Ingestion:** Not a normal route of exposure.

**Skin Sensitization:** Not available.

**Respiratory Sensitization:** Not available.

**Medical Conditions Aggravated By Exposure:** Not available.

**EFFECTS OF CHRONIC EXPOSURE (from short and long-term exposure)**

**Target Organs:** Skin. Eyes. Respiratory system. Blood. Liver. Kidneys. Central nervous system.

**Chronic Effects:** Not available.

**Carcinogenicity:** Product is not classified as a carcinogen. See Component Carcinogenicity table below for information on individual components.

**Component Carcinogenicity**

| Component | ACGIH | IARC | NTP | OSHA | Prop 65 |
|---|---|---|---|---|---|
| Propylene | A4 | Group 3 | Not listed. | Not listed. | Not listed. |

**Mutagenicity:** Not available.

**Reproductive Effects:** Not available.

**Developmental Effects**

**Teratogenicity:** Not available.

**Embryotoxicity:** Not available.

**Toxicologically Synergistic Materials:** Not available.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity:** Not available.

**Persistence / Degradability:** Not available.

**Bioaccumulation / Accumulation:** Not available.

**Mobility in Environment:** Not available.

**Other Adverse Effects:** Not available.

## Section 13: DISPOSAL CONSIDERATIONS

**Disposal Instructions:** Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

## Section 14: TRANSPORT INFORMATION

**U.S. Department of Transportation (DOT)**

**Proper Shipping Name:** UN1075, LIQUEFIED PETROLEUM GASES, 2.1

**Class:** 2.1

**UN Number:** UN1075

**Packing Group:** Not applicable.

**Label Code:**


**Canada Transportation of Dangerous Goods (TDG)**

**Proper Shipping Name:** UN1075, LIQUEFIED PETROLEUM GASES, 2.1

**Class:** 2.1

**UN Number:** UN1075

**Packing Group:** Not applicable.

**Label Code:**


## Section 15: REGULATORY INFORMATION

**Chemical Inventories**

**US (TSCA)**
The components of this product are in compliance with the chemical notification requirements of TSCA.

**Canada (DSL)**
The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

**Federal Regulations**

**United States**
This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**SARA Title III**

| Component | Section 302 (EHS) TPQ (lbs.) | Section 304 EHS RQ (lbs.) | CERCLA RQ (lbs.) | Section 313 | RCRA CODE | CAA 112( r ) TQ (lbs.) |
|---|---|---|---|---|---|---|
| Propane | Not listed. | Not listed. | Not listed. | Not listed. | Not listed. | 10000 |
| Propylene | Not listed. | Not listed. | Not listed. | 313 | Not listed. | 10000 |
| Butane | Not listed. | Not listed. | Not listed. | Not listed. | Not listed. | 10000 |
| Ethyl mercaptan | Not listed. | Not listed. | Not listed. | Not listed. | Not listed. | 10000 |

**State Regulations**

**Massachusetts**

US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

| Component | CAS No. | RTK List |
|---|---|---|
| Propane | 74-98-6 | Listed. |
| Propylene | 115-07-1 | Listed. |
| Butane | 106-97-8 | Listed. |
| Ethyl mercaptan | 75-08-1 | Listed. |

**New Jersey**

US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

| Component | CAS No. | RTK List |
|---|---|---|
| Propane | 74-98-6 | SHHS |
| Propylene | 115-07-1 | SHHS |
| Butane | 106-97-8 | SHHS |
| Ethyl mercaptan | 75-08-1 | SHHS |

**Note:** SHHS = Special Health Hazard Substance

**Pennsylvania**

US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

| Component | CAS No. | RTK List |
|---|---|---|
| Propane | 74-98-6 | Listed. |
| Propylene | 115-07-1 | E |
| Butane | 106-97-8 | Listed. |
| Ethyl mercaptan | 75-08-1 | Listed. |

**Note:** E = Environmental Hazard

**California**

**California Prop 65:** This product does not contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

## Section 16: OTHER INFORMATION

**Disclaimer:**

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his own particular use.

| | |
|---|---|
| **Date of Preparation of SDS:** | September 14, 2016 |
| **Version:** | 1.2 |
| **GHS SDS Prepared by:** | **Deerfoot Consulting Inc.** |
| | **Phone: (403) 720-3700** |