

**Section 1: IDENTIFICATION**

**Product Name:** Hydrogen Natural Gas Blends

**Synonyms:** Not available.

**Product Use:** Feedstock. Fuel.

**Restrictions on Use:** Not available.

**Manufacturer/Supplier:** ATCO Gas and Pipelines Ltd.  
10035 - 105 Street  
Edmonton, AB T5J 1C8

**Phone Number:** 1-888-511-7550

**Emergency Phone:** 1-800-511-3447  
1-877-496-9380 (Transmission)

**Date of Preparation of SDS:** October 11, 2023

**Section 2: HAZARD(S) IDENTIFICATION****GHS INFORMATION**

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

**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, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Response:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
In case of leakage, eliminate all ignition sources.

**Storage:** Store in a well-ventilated place.

**Disposal:** Dispose of contents/container in accordance with applicable regional, national and local laws and regulations.

**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**

<b>Hazardous Ingredient(s)</b>	<b>Common name / Synonyms</b>	<b>CAS No.</b>	<b>% vol./vol.</b>
Natural gas	Not available.	8006-14-2	100
Methane	Not available.	74-82-8	80 - 95
Ethane	Not available.	74-84-0	1 - 10
Propane	Not available.	74-98-6	0.5 - 5
Butane	Not available.	106-97-8	0.1 - 1.5
Propane, 2-methyl-	Isobutane	75-28-5	0.1 - 1.5
Nitrogen	Not available.	7727-37-9	0.5 - 5
Carbon dioxide	Not available.	124-38-9	0.5 - 5
Hydrogen	Not available.	1333-74-0	0 - 7

**Section 4: FIRST-AID MEASURES**

<b>Inhalation:</b>	<p>If inhaled: Call a poison center or doctor if you feel unwell.</p> <p><b>Acute and delayed symptoms and effects:</b> May displace oxygen and cause rapid suffocation. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.</p>
<b>Eye Contact:</b>	<p>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.</p> <p><b>Acute and delayed symptoms and effects:</b> 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.</p>
<b>Skin Contact:</b>	<p>Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. If on skin: Wash with plenty of 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.</p> <p><b>Acute and delayed symptoms and effects:</b> 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.</p>
<b>Ingestion:</b>	<p>Not a normal route of exposure.</p> <p><b>Acute and delayed symptoms and effects:</b> Not a normal route of exposure.</p>
<b>General Advice:</b>	<p>In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).</p>
<b>Note to Physicians:</b>	<p>Symptoms may not appear immediately.</p>

**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. Methane is lighter than air and will rise. 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.** Hydrogen may burn with an invisible flame.

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 CO<sub>2</sub>.

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.

**Protection of Firefighters:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. 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.

<b>Personal Precautions:</b>	Do not touch or walk through spilled material. Use personal protection recommended in Section 8.
<b>Environmental Precautions:</b>	Not normally required.
<b>Methods for Containment:</b>	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.
<b>Methods for Clean-Up:</b>	Prevent spreading of vapors through sewers, ventilation systems and confined areas. Isolate area until gas has dispersed.
<b>Other Information:</b>	See Section 13 for disposal considerations.

**Section 7: HANDLING AND STORAGE****Handling:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use. See Section 8 for information on Personal Protective Equipment.

**Storage:**

Store in a well-ventilated place. 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**

Natural gas [CAS No. 8006-14-2]

**ACGIH:** Simple asphyxiant; Explosion hazard

**OSHA:** No PEL established.

Methane [CAS No. 74-82-8]

**ACGIH:** Simple asphyxiant; Explosion hazard

**OSHA:** No PEL established.

Ethane [CAS No. 74-84-0]

**ACGIH:** Simple asphyxiant; Explosion hazard

**OSHA:** No PEL established.

Propane [CAS No. 74-98-6]

**ACGIH:** Simple asphyxiant; Explosion hazard

**OSHA:** 1000 ppm (TWA), 1800 mg/m<sup>3</sup> (TWA);

Butane [CAS No. 106-97-8]

**ACGIH:** 1000 ppm (STEL); Explosion hazard (2017)

**OSHA:** 800 ppm (TWA) [Vacated];

Isobutane [CAS No. 75-28-5]

**ACGIH:** 1000 ppm (STEL); Explosion hazard (2017)

**OSHA:** No PEL established.

Nitrogen [CAS No. 7727-37-9]

**ACGIH:** Simple asphyxiant

**OSHA:** No PEL established.

Carbon dioxide [CAS No. 124-38-9]

**ACGIH:** 5000 ppm (TWA); 30000 ppm (STEL); (1986)

**OSHA:** 5000 ppm (TWA), 9000 mg/m<sup>3</sup> (TWA);

Hydrogen [CAS No. 1333-74-0]

**ACGIH:** Simple asphyxiant; Explosion hazard

**OSHA:** No PEL established.

**PEL:** Permissible Exposure Limit

**TWA:** Time-Weighted Average

**STEL:** Short-Term Exposure Limit

**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 chemical safety goggles. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3:20 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. Flame resistant clothing that meets the NFPA 2112 and CAN/CGSB 155.20-2017 standards is recommended in areas where material is stored or handled.

**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-Z94.4-18, 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**

<b>Appearance:</b>	Colourless gas.
<b>Colour:</b>	Colourless.
<b>Odour:</b>	Slight hydrocarbon.
<b>Odour Threshold:</b>	Not available.
<b>Physical State:</b>	Gas.
<b>pH:</b>	Not available.
<b>Melting Point / Freezing Point:</b>	-183 °C (-297.4 °F) (Methane)
<b>Initial Boiling Point:</b>	-161 °C (-257.8 °F) (Methane)
<b>Boiling Range:</b>	Not available.
<b>Flash Point:</b>	Not available.
<b>Evaporation Rate:</b>	Not available.
<b>Flammability (solid, gas):</b>	Extremely flammable gas.
<b>Lower Flammability Limit:</b>	4.4 % (Natural Gas) 5% (Methane) 3% (Ethane) 2.1% (Propane) 1.8% (Butane & Isobutane) 4 % (Hydrogen)
<b>Upper Flammability Limit:</b>	16.4 % (Natural Gas) 15% (Methane) 12.5% (Ethane) 9.5% (Propane) 8.4% (Butane & Isobutane) 75 % (Hydrogen)
<b>Vapor Pressure:</b>	Not available.
<b>Relative Vapor Density:</b>	Not available.
<b>Relative Density:</b>	Not available.
<b>Solubilities:</b>	Slightly soluble in water.
<b>Partition Coefficient: n-Octanol/Water:</b>	Not available.
<b>Auto-ignition Temperature:</b>	Not available.
<b>Decomposition Temperature:</b>	Not available.
<b>Kinematic Viscosity:</b>	Not available.
<b>Percent Volatile, wt. %:</b>	100
<b>VOC content, wt. %:</b>	Not available.
<b>Density:</b>	Not available.
<b>Coefficient of Water/Oil Distribution:</b>	Not available.

**Particle Characteristics:** 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 <sub>50</sub> oral	LD <sub>50</sub> dermal	LC <sub>50</sub>
Natural gas	8006-14-2	Not available.	Not available.	Not available.
Methane	74-82-8	Not available.	Not available.	Not available.
Ethane	74-84-0	Not available.	Not available.	Not available.
Propane	74-98-6	Not available.	Not available.	Not available.
Butane	106-97-8	Not available.	Not available.	658000 mg/m <sup>3</sup> (rat); 4H
Isobutane	75-28-5	Not available.	Not available.	570000 ppm (rat); 15M
Nitrogen	7727-37-9	Not available.	Not available.	Not available.
Carbon dioxide	124-38-9	Not available.	Not available.	Not available.
Hydrogen	1333-74-0	Not available.	Not available.	Not available.

**Likely Routes of Exposure:** Eye contact. Skin contact. Inhalation.**Target Organs:** Skin. Eyes. Respiratory system. Cardiovascular system. Central nervous system. Peripheral nervous system.**Symptoms (including delayed and immediate effects)****Inhalation:** May displace oxygen and cause rapid suffocation. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. 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.

**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.

**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. Cardiovascular system. Central nervous system. Peripheral nervous system.

**Chronic Effects:** Prolonged exposure to Natural gas can lead to hypoxia, bluish colouration to the skin, numbness, damage to the nervous system, heart sensitization, reduced consciousness and death.

**Carcinogenicity:** This product does not contain any carcinogens or potential carcinogens above reportable thresholds as listed by ACGIH, IARC, OSHA, or NTP.

**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:** UN1971, NATURAL GAS, COMPRESSED, 2.1

**Class:** 2.1

**UN Number:** UN1971

**Packing Group:** Not applicable.

**Placard(s):**



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

**Proper Shipping Name:** UN1971, NATURAL GAS, COMPRESSED, 2.1

**Class:** 2.1

**UN Number:** UN1971

**Packing Group:** Not applicable.

**Placard(s):**



**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.)
Methane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Ethane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Propane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Butane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Isobutane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Hydrogen	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000

**California**  
**California Prop 65:**



**WARNING** This product can expose you to chemicals including Benzene, Ethylbenzene, Hexane, Naphthalene, and Toluene which are 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).

<b>Section 16: OTHER INFORMATION</b>
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**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 their own particular use.

**Date of Preparation of SDS:** October 11, 2023  
**Version:** 1.0  
**GHS SDS Prepared by:** Deerfoot Consulting Inc.  
**Phone:** (403) 720-3700