

Section 1: IDENTIFICATION

Product Name: Natural Gas (Sour)
Synonyms: Not available.
Product Use: Refinery feedstock.
Restrictions on Use: Not available.
Manufacturer/Supplier: Caledonian Midstream Corporation
Suite 2110 – 555 4th Ave. S.W.
Calgary, Alberta, T2P 3E7
(403) 532-8800
Phone Number: 1-855-864-5711
Emergency Phone: 24-hr Emergency Number: 1-855-864-5711
CANUTEC (613) 996-6666

Date of Preparation of SDS: August 1, 2023

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

Classification: Flammable Gases, Category 1
Gases Under Pressure - Compressed Gas
Acute Toxicity - Inhalation, Category 2
Eye Irritation, Category 2A

LABEL ELEMENTS**Hazard****Pictogram(s):****Signal Word:** Danger

Hazard Statements: Extremely flammable gas.
Contains gas under pressure; may explode if heated.
Fatal if inhaled.
Causes serious eye irritation.

Precautionary Statements

Prevention: Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.
Do not breathe mist, vapours, or spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing and eye protection.
Wear respiratory protection.

Response: If inhaled: Remove person to fresh air and keep comfortable for breathing.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 Immediately call a poison center or doctor.
 If eye irritation persists: Get medical advice/attention.
 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. Keep container tightly closed.
 Store locked up.
 Protect from sunlight.

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).

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% vol./vol.
Natural gas	Not available.	8006-14-2	100
Methane	Not available.	74-82-8	60 - 100
Ethane	Not available.	74-84-0	0.5 - 1, 1 - 5, 5 - 10, 10 - 15 *
Hydrogen sulfide (H ₂ S)	Not available.	7783-06-4	10 - 30
Propane	Not available.	74-98-6	1 - 5
Nitrogen	Not available.	7727-37-9	0.5 - 1.5

* Multiple ranges given due to variability in process streams.

Section 4: FIRST-AID

Inhalation: If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or doctor. If breathing or the heart stops, trained personnel should immediately begin artificial respiration (AR) or cardiopulmonary resuscitation (CPR) respectively. Get medical attention immediately.

Acute and delayed symptoms and effects: Fatal if inhaled. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Hydrogen sulphide may cause symptoms such as digestive upset and loss of appetite, loss of sense of smell and pulmonary edema. At 500-1000 ppm Hydrogen sulphide may cause respiratory paralysis, collapse and death without rescue.

Eye Contact: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Acute and delayed symptoms and effects: Causes serious eye irritation. Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. Hydrogen sulphide may cause eye irritation at 1-20 ppm and acute conjunctivitis at higher concentrations. Above 50 ppm H₂S, eye irritation may include symptoms of redness, severe swelling, tearing, sensitivity to light and the appearance of 'Halos' around lights.

Skin Contact: If on skin: Wash with plenty of soap and water. Call a poison center or doctor if you feel unwell. Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Flush immediately with warm water. 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. May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. 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.

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. For inhalation of Hydrogen Sulphide, consider oxygen.

Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION

Extremely flammable gas. Contains gas under pressure; may explode if heated. Flammable gas by WHMIS criteria. Not flammable or combustible by OSHA criteria. EXTREMELY FLAMMABLE. 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. CAUTION: Methane (UN1971) 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. When heated, this material may evolve toxic and flammable Hydrogen sulphide.

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. Hydrogen sulphide is heavier than air and may collect in low lying areas and confined spaces. 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.

Wear 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 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.

Personal Precautions:	Do not touch or walk through spilled material. Use personal protection recommended in Section 8. Don full-face, positive pressure, self-contained breathing apparatus.
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:	Dispose of in accordance with all Federal, State, Provincial and local regulations. Comply with Federal, State, Provincial, and local requirements for spill and/or release notification.

Section 7: HANDLING AND STORAGE

Handling:

Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Pressurized container: Do not pierce or burn, even after use. Do not breathe mist, vapours, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. See Section 8 for information on Personal Protective Equipment.

Storage:

Limit quantity of material in storage. Restrict access to storage area. Post appropriate warning signs. Keep storage area separate from populated work areas. Consider leak detection and alarm systems, as required. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Store away from incompatible Materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children. Head spaces in storage containers may contain toxic hydrogen sulphide gas. Structural materials and lighting and ventilation systems should be corrosion resistant.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines**Component**

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

ACGIH: 1000 ppm (TWA); (2001)

OSHA: No PEL established.

Methane [CAS No. 74-82-8]

ACGIH: 1000 ppm (TWA); (2001)

OSHA: No PEL established.

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Ethane [CAS No. 74-84-0]

ACGIH: 1000 ppm (TWA); (2001)

OSHA: No PEL established.

Hydrogen sulphide [CAS No. 7783-06-4]

ACGIH: 1 ppm (TWA); 5 ppm (STEL); (2009)

OSHA: 20 ppm (C); 50 ppm (Peak) (Maximum duration: 10 mins. once only if no other meas. exp. occurs.)

10 ppm (TWA); 15 ppm (STEL) [Vacated]

Propane [CAS No. 74-98-6]

ACGIH: 1000 ppm (TWA); (2001)

OSHA: 1000 ppm (TWA), 1800 mg/m³ (TWA)

Nitrogen [CAS No. 7727-37-9]

ACGIH: Simple asphyxiant (1992)

OSHA: No PEL established.

PEL: Permissible Exposure Limit

TWA: Time-Weighted Average

STEL: Short-Term Exposure Limit

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 safety glasses. Ensure that eyewash stations are close to the workstation location. Use equipment for eye protection that meets the standards referenced by OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection:

Wear protective gloves. Consult manufacturer specifications for further information.

Skin and Body Protection:

Wear protective clothing.

Respiratory Protection:

Wear 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 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.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless gas.
Colour:	Colourless.
Odour:	Rotten eggs. May be odourless (due to high H ₂ S concentrations present).
Odour Threshold:	0.00047 ppm, (H ₂ S)
Physical State:	Gas.
pH:	Not available.
Melting Point / Freezing Point:	Not available.
Initial Boiling Point:	Not available.
Boiling Point:	Not available.
Flash Point:	-136 °C (-212.8 °F) (Methane)
Evaporation Rate:	Not available.
Flammability (solid, gas):	Extremely flammable gas.
Lower Flammability Limit:	2.1 % (Propane)
Upper Flammability Limit:	15 % (Methane)
Vapor Pressure:	Not available.
Vapor Density:	Not available.
Relative Density:	0.662 (Water = 1)
Solubilities:	Insoluble.
Partition Coefficient: n-Octanol/Water:	Not available.
Auto-ignition Temperature:	Not available.
Decomposition Temperature:	Not available.
Viscosity:	Not available.
Percent Volatile, wt. %:	Not available.
VOC content, wt. %:	Not available.
Density:	0.81 kg/m ³ at 15°C (59 °F)
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:	Strong acids. Strong bases. Strong oxidizers. Halogens.
Hazardous Decomposition Products:	Hazardous sulphur dioxide, and related oxides of sulphur may be generated upon combustion.

Section 11: TOXICOLOGICAL INFORMATION
EFFECTS OF ACUTE EXPOSURE
Product Toxicity

Oral:	Not available.
Dermal:	Not available.
Inhalation:	Not available.

Component Toxicity

Component	CAS No.	LD₅₀ oral	LD₅₀ dermal	LC₅₀
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.
Hydrogen sulfide (H ₂ S)	7783-06-4	Not available.	Not available.	444 ppm (rat); 4H
Propane	74-98-6	Not available.	Not available.	Not available.
Nitrogen	7727-37-9	Not available.	Not available.	Not available.

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

Target Organs: Skin. Eyes. Respiratory system. Lungs. Blood. Cardiovascular system. Nervous system.

Symptoms (including delayed and immediate effects)

Inhalation: Fatal if inhaled. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Hydrogen sulphide may cause symptoms such as digestive upset and loss of appetite, loss of sense of smell and pulmonary edema. At 500-1000 ppm Hydrogen sulphide may cause respiratory paralysis, collapse and death without rescue.

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- Eye:** Causes serious eye irritation. Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. Hydrogen sulphide may cause eye irritation at 1-20 ppm and acute conjunctivitis at higher concentrations. Above 50 ppm H₂S, eye irritation may include symptoms of redness, severe swelling, tearing, sensitivity to light and the appearance of 'Halos' around lights.
- Skin:** Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. 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. Lungs. Blood. Cardiovascular system. 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. Hydrogen sulphide may reduce lung function; cause neurological effects such as headaches, nausea, depression and personality changes; eye and mucous membrane irritation: damage to cardiovascular system.
- Carcinogenicity:** This product does not contain any carcinogens or potential carcinogens 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.
Label Code:

**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.
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.

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Canada (DSL)

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

Federal Regulations
Canada

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

WHMIS Classification: Class A - Compressed Gas.
 Class B1 - Flammable Gases.
 Class D1A - Very Toxic Material.
 Class D2B - Eye irritant.

Hazard Symbols:

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
Hydrogen sulphide	500	100	100	313s	U135	10000
Propane	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
Natural gas	8006-14-2	Listed.
Methane	74-82-8	Listed.
Ethane	74-84-0	Listed.
Hydrogen sulphide	7783-06-4	E
Propane	74-98-6	Listed.
Nitrogen	7727-37-9	Listed.

Note: E = Extraordinarily Hazardous Substance



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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
Methane	74-82-8	SHHS
Ethane	74-84-0	SHHS
Hydrogen sulphide	7783-06-4	SHHS
Propane	74-98-6	SHHS
Nitrogen	7727-37-9	Listed.

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
Natural gas	8006-14-2	Listed.
Methane	74-82-8	Listed.
Ethane	74-84-0	Listed.
Hydrogen sulphide	7783-06-4	E
Propane	74-98-6	Listed.
Nitrogen	7727-37-9	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: August 1, 2023

Version: 1.0

MSDS Prepared by: Caledonian Midstream Corporation