Wellhead Natural Gas (Sour)

Safety Data Sheet

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

Date of Issue: 08/16/2024 Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Wellhead Natural Gas {Sour)

Synonyms: Wellhead Gas, Raw Gas, Methane, Residue Gas, Natural Gas Sweet, Marsh Gas, Fuel Gas, Petroleum Gas

1.2. Intended Use of the Product

Industrial Uses

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

Company

Williams Inc.
One Williams Center
Tulsa, OK 74172
855-945-5762
www.williams.com
ehs@williams.com

1.4. Emergency Telephone Number

CHEMTREC:
1-800-424-9300 {US/Canada)
+01 703-527-3887 {International)
Security.OperationsCenter@williams.com

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Flammable gases Category 1A	H220
Gases under pressure Compressed gas	H280
Contains refrigerated gas; may cause cryogenic burns or injury	H281
Acute toxicity (inhalation:gas) Category 3	H331
Serious eye damage/eye irritation Category 2A	H319
Specific target organ toxicity (single exposure) Category 1	H370
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335
Simple Asphyxiant	
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA) :

GHS02 GHS04 GHS06 GHS07 GHS08 GHS09

Signal Word (GHS-US/CA) : Danger

Hazard Statements (GHS-US/CA) : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
H319 - Causes serious eye irritation.
H331 - Toxic if inhaled.
H335 - May cause respiratory irritation.
H370 - Causes damage to organs {central nervous system) {Inhalation).
H400 - Very toxic to aquatic life.
H410 - Very toxic to aquatic life with long lasting effects.

May displace oxygen and cause rapid suffocation.

Precautionary Statements (GHS-US/CA) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 - Do not breathe vapors, mist, or spray.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
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.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P311 - IF exposed or concerned: Call a POISON CENTER or doctor.
P311 - Call a POISON CENTER or doctor.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P321 - Specific treatment {see section 4 on this SDS).
P337+P313 - If eye irritation persists: Get medical advice/attention.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - In case of leakage, eliminate all ignition sources.
P391 - Collect spillage.
P403 - Store in a well-ventilated place.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Contains Hydrogen Sulfide, symptoms of overexposure are headaches, dizziness, nausea, coughing, respiratory irritation, eye irritation, skin irritation, pain in the nose, and loss of consciousness. Heating of the product may release higher amounts of Hydrogen Sulfide {H_2S). Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Contact with gas escaping the container can cause frostbite.

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

No additional information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	% *	GHS Ingredient Classification
Methane	Marsh gas / Methyl hydride / Methane, compressed / Monomethylamine	{CAS-No.) 74-82-8	> 75	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy
Hydrogen sulfide	Hydrogen sulfide {H2S) / Hydrogen sulphide / Sulfur hydride / Dihydrogen sulphide / hydrogen sulfide / Hydrogen sulphide, hydrogen sulfide / Sulfane	{CAS-No.) 7783-06-4	0.005 – 25	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Acute Tox. 2 (Inhalation:gas), H330 Eye Irrit. 2A, H319 STOT SE 3, H335 STOT SE 1, H370 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Ethane	Ethyl hydride / ETHANE	{CAS-No.) 74-84-0	< 20	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy

Propane	Normal propane / PROPANE / n-Propane / R290	{CAS-No.) 74-98-6	< 10	Flam. Gas 1A, H220 Press. Gas (Liq.), H280
Carbon dioxide	CARBON DIOXIDE / Carbonic anhydride	{CAS-No.) 124-38-9	< 10	Press. Gas (Comp.), H280 Simple Asphy
n-Butane	Butane / BUTANE	{CAS-No.) 106-97-8	< 5	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Simple Asphy
Nitrogen	Nitrogen gas / Nitrogen, liquefied / NITROGEN / Nitrogen, compressed / nitrogen	{CAS-No.) 7727-37-9	< 5	Simple Asphy Press. Gas (Comp.), H280

Full text of H-statements: see section 16

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

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Rescuers must don respiratory protection before approaching exposed persons. Hydrogen sulfide has a characteristic rotten egg “sulfurous” odor with an odor threshold of less than 10 parts per billion. However, this odor should not be used as a warning property of toxic levels because H_2S can overwhelm and deaden the sense of smell. Therefore, the smell of H_2S should not be used as an indicator of a hazardous condition – a H_2S meter or colorimetric indicating tubes are typically used to determine the concentration of H_2S. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice {show the label where possible).

Inhalation: First, take proper precautions to ensure your own safety before attempting rescue {e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Immediately call a poison center or doctor/physician.

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

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

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

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Contact with gas escaping the container can cause frostbite. Asphyxia by lack of oxygen: risk of death. Contains a small amount of Hydrogen Sulfide, symptoms of overexposure are headaches, dizziness, nausea, coughing, respiratory irritation, eye irritation, skin irritation, pain in the nose, and loss of consciousness. Heating of the product may release higher amounts of Hydrogen Sulfide {H_2S). May cause respiratory irritation. Causes damage to organs {central nervous system) {inhalation). Causes serious eye irritation. Toxic if inhaled.

Inhalation: Irritation of the respiratory tract and the other mucous membranes. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death. In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Skin Contact: Contact with gas escaping the container can cause frostbite and freeze burns.

Eye Contact: Contact with gas escaping the container can cause frostbite, freeze burns, and permanent eye damage. Contact causes severe irritation with redness and swelling of the conjunctiva.

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

Chronic Symptoms: Causes damage to organs {central nervous system) through prolonged or repeated exposure {Inhalation).

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. Heating may cause an explosion. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

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

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

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

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

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

5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Ruptured cylinders may rocket. Do not allow product to spread into the environment. Eliminate every possible source of ignition. Do not breathe gas. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, mist, or spray.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment {PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Eliminate ignition sources. 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.

6.2. Environmental Precautions

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

6.3. Methods and Materials for Containment and Cleaning Up

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

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

6.4. Reference to Other Sections

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

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: 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. Do not breathe gas. Use only outdoors or in a well-ventilated area. Do not get in eyes, on skin, or on clothing.

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

7.2. Conditions for Safe Storage, Including Any Incompatibilities

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

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

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

7.3. Specific End Use(s)

Industrial Uses

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

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

Methane (74-82-8)		
USA ACGIH	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content
Nunavut	OEL STEL [ppm]	1250 ppm
Nunavut	OEL TWA [ppm]	1000 ppm
Northwest Territories	OEL STEL [ppm]	1250 ppm
Northwest Territories	OEL TWA [ppm]	1000 ppm
Saskatchewan	OEL STEL [ppm]	1250 ppm
Saskatchewan	OEL TWA [ppm]	1000 ppm
Ethane (74-84-0)		
USA ACGIH	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content
Alberta	OEL TWA [ppm]	1000 ppm
Nunavut	OEL STEL [ppm]	1250 ppm
Nunavut	OEL TWA [ppm]	1000 ppm
Northwest Territories	OEL STEL [ppm]	1250 ppm
Northwest Territories	OEL TWA [ppm]	1000 ppm
Saskatchewan	OEL STEL [ppm]	1250 ppm
Saskatchewan	OEL TWA [ppm]	1000 ppm
Propane (74-98-6)		
USA ACGIH	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content
USA OSHA	OSHA PEL {TWA) [1]	1800 mg/m3
USA OSHA	OSHA PEL {TWA) [2]	1000 ppm
USA NIOSH	NIOSH REL {TWA)	1800 mg/m3
USA NIOSH	NIOSH REL TWA [ppm]	1000 ppm
USA IDLH	IDLH [ppm]	2100 ppm {10% LEL)
Alberta	OEL TWA [ppm]	1000 ppm
Nunavut	OEL STEL [ppm]	1250 ppm
Nunavut	OEL TWA [ppm]	1000 ppm
Northwest Territories	OEL STEL [ppm]	1250 ppm
Northwest Territories	OEL TWA [ppm]	1000 ppm
Quebec	VEMP {OEL TWA)	1800 mg/m3
Quebec	VEMP {OEL TWA) [ppm]	1000 ppm
Saskatchewan	OEL STEL [ppm]	1250 ppm
Saskatchewan	OEL TWA [ppm]	1000 ppm
Carbon dioxide (124-38-9)		
USA ACGIH	ACGIH OEL TWA [ppm]	5000 ppm

USA ACGIH	ACGIH OEL STEL [ppm]	30000 ppm
USA OSHA	OSHA PEL {TWA) [1]	9000 mg/m3
USA OSHA	OSHA PEL {TWA) [2]	5000 ppm
USA NIOSH	NIOSH REL {TWA)	9000 mg/m3
USA NIOSH	NIOSH REL TWA [ppm]	5000 ppm
USA NIOSH	NIOSH REL {STEL)	54000 mg/m3
USA NIOSH	NIOSH REL STEL [ppm]	30000 ppm
USA IDLH	IDLH [ppm]	40000 ppm
Alberta	OEL STEL	54000 mg/m3
Alberta	OEL STEL [ppm]	30000 ppm
Alberta	OEL TWA	9000 mg/m3
Alberta	OEL TWA [ppm]	5000 ppm
British Columbia	OEL STEL [ppm]	15000 ppm
British Columbia	OEL TWA [ppm]	5000 ppm
Manitoba	OEL STEL [ppm]	30000 ppm
Manitoba	OEL TWA [ppm]	5000 ppm
New Brunswick	OEL STEL	54000 mg/m3
New Brunswick	OEL STEL [ppm]	30000 ppm
New Brunswick	OEL TWA	9000 mg/m3
New Brunswick	OEL TWA [ppm]	5000 ppm
Newfoundland & Labrador	OEL STEL [ppm]	30000 ppm
Newfoundland & Labrador	OEL TWA [ppm]	5000 ppm
Nova Scotia	OEL STEL [ppm]	30000 ppm
Nova Scotia	OEL TWA [ppm]	5000 ppm
Nunavut	OEL STEL [ppm]	30000 ppm
Nunavut	OEL TWA [ppm]	5000 ppm
Northwest Territories	OEL STEL [ppm]	30000 ppm
Northwest Territories	OEL TWA [ppm]	5000 ppm
Ontario	OEL STEL [ppm]	30000 ppm
Ontario	OEL TWA [ppm]	5000 ppm
Prince Edward Island	OEL STEL [ppm]	30000 ppm
Prince Edward Island	OEL TWA [ppm]	5000 ppm
Quebec	VECD {OEL STEL)	54000 mg/m3
Quebec	VECD {OEL STEL) [ppm]	30000 ppm
Quebec	VEMP {OEL TWA)	9000 mg/m3
Quebec	VEMP {OEL TWA) [ppm]	5000 ppm
Saskatchewan	OEL STEL [ppm]	30000 ppm
Saskatchewan	OEL TWA [ppm]	5000 ppm
Yukon	OEL STEL	27000 mg/m3
Yukon	OEL STEL [ppm]	15000 ppm
Yukon	OEL TWA	9000 mg/m3
Yukon	OEL TWA [ppm]	5000 ppm
n-Butane (106-97-8)		
USA ACGIH	ACGIH OEL STEL [ppm]	1000 ppm {explosion hazard {Butane, isomers)
USA NIOSH	NIOSH REL {TWA)	1900 mg/m3
USA NIOSH	NIOSH REL TWA [ppm]	800 ppm
USA IDLH	IDLH [ppm]	1600 ppm {>10% LEL)
Alberta	OEL TWA [ppm]	1000 ppm
British Columbia	OEL STEL [ppm]	1000 ppm {Butane, all isomers)
Manitoba	OEL STEL [ppm]	1000 ppm {explosion hazard {Butane, isomers)
New Brunswick	OEL TWA	1900 mg/m3

New Brunswick	OEL TWA [ppm]	800 ppm
Newfoundland & Labrador	OEL STEL [ppm]	1000 ppm {explosion hazard {Butane, isomers)
Nova Scotia	OEL STEL [ppm]	1000 ppm {explosion hazard {Butane, isomers)
Nunavut	OEL STEL [ppm]	1250 ppm {Butane, all isomers)
Nunavut	OEL TWA [ppm]	1000 ppm {Butane, all isomers)
Northwest Territories	OEL STEL [ppm]	1250 ppm {Butane, all isomers)
Northwest Territories	OEL TWA [ppm]	1000 ppm {Butane, all isomers)
Ontario	OEL STEL [ppm]	1000 ppm {explosion hazard {Butane, all isomers)
Prince Edward Island	OEL STEL [ppm]	1000 ppm {explosion hazard {Butane, isomers)
Quebec	VEMP {OEL TWA)	1900 mg/m3
Quebec	VEMP {OEL TWA) [ppm]	800 ppm
Saskatchewan	OEL STEL [ppm]	1250 ppm {Butane, all isomers)
Saskatchewan	OEL TWA [ppm]	1000 ppm {Butane, all isomers)
Yukon	OEL STEL	1600 mg/m3
Yukon	OEL STEL [ppm]	750 ppm
Yukon	OEL TWA	1400 mg/m3
Yukon	OEL TWA [ppm]	600 ppm
Nitrogen (7727-37-9)		
USA ACGIH	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content
Hydrogen sulfide (7783-06-4)		
USA ACGIH	ACGIH OEL TWA [ppm]	1 ppm
USA ACGIH	ACGIH OEL STEL [ppm]	5 ppm
USA OSHA	OSHA PEL C [ppm]	20 ppm
USA OSHA	Acceptable Maximum Peak Above The Acceptable Ceiling Concentration For An 8-Hr Shift	50 ppm Peak {10 minutes once, only if no other measurable exposure occurs)
USA NIOSH	NIOSH REL {Ceiling)	15 mg/m3
USA NIOSH	NIOSH REL C [ppm]	10 ppm
USA IDLH	IDLH [ppm]	100 ppm
Alberta	OEL C	21 mg/m3
Alberta	OEL Ceiling [ppm]	15 ppm
Alberta	OEL TWA	14 mg/m3
Alberta	OEL TWA [ppm]	10 ppm
British Columbia	OEL Ceiling [ppm]	10 ppm
Manitoba	OEL STEL [ppm]	5 ppm
Manitoba	OEL TWA [ppm]	1 ppm
New Brunswick	OEL STEL	21 mg/m3
New Brunswick	OEL STEL [ppm]	15 ppm
New Brunswick	OEL TWA	14 mg/m3
New Brunswick	OEL TWA [ppm]	10 ppm
Newfoundland & Labrador	OEL STEL [ppm]	5 ppm
Newfoundland & Labrador	OEL TWA [ppm]	1 ppm
Nova Scotia	OEL STEL [ppm]	5 ppm
Nova Scotia	OEL TWA [ppm]	1 ppm
Nunavut	OEL STEL [ppm]	15 ppm
Nunavut	OEL TWA [ppm]	10 ppm
Northwest Territories	OEL STEL [ppm]	15 ppm
Northwest Territories	OEL TWA [ppm]	10 ppm
Ontario	OEL STEL [ppm]	15 ppm
Ontario	OEL TWA [ppm]	10 ppm

Prince Edward Island	OEL STEL [ppm]	5 ppm
Prince Edward Island	OEL TWA [ppm]	1 ppm
Quebec	VECD {OEL STEL)	21 mg/m3
Quebec	VECD {OEL STEL) [ppm]	15 ppm
Quebec	VEMP {OEL TWA)	14 mg/m3
Quebec	VEMP {OEL TWA) [ppm]	10 ppm
Saskatchewan	OEL STEL [ppm]	15 ppm
Saskatchewan	OEL TWA [ppm]	10 ppm
Yukon	OEL STEL	27 mg/m3
Yukon	OEL STEL [ppm]	15 ppm
Yukon	OEL TWA	15 mg/m3
Yukon	OEL TWA [ppm]	10 ppm
Aliphatic hydrocarbon gases: Alkanes (C1-4)		
Nunavut	OEL STEL [ppm]	1250 ppm
Nunavut	OEL TWA [ppm]	1000 ppm
Northwest Territories	OEL STEL [ppm]	1250 ppm
Northwest Territories	OEL TWA [ppm]	1000 ppm
Saskatchewan	OEL STEL [ppm]	1250 ppm
Saskatchewan	OEL TWA [ppm]	1000 ppm
Aliphatic hydrocarbon gases, alkane (C2-4)		
Alberta	OEL TWA [ppm]	1000 ppm

8.2. Exposure Controls

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

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

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

Skin and Body Protection: Wear suitable protective clothing.

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

Thermal Hazard Protection: Wear thermally resistant protective clothing.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Gas
Appearance	:	Colorless
Odor	:	Like rotten eggs. Olfactory fatigue occurs rapidly at levels of 50 ppm or higher. Odor is not a reliable warning property. If the rotten egg odor of Hydrogen Sulfide is not noticed, the concentration is dangerously high and immediate evacuation is required.
Odor Threshold	:	< 1 ppm< 1 mg/m3
pH	:	No data available
Evaporation Rate	:	No data available

Melting Point	:	No data available
Freezing Point	:	No data available
Boiling Point	:	-157 °C {-250.6 °F)
Flash Point	:	-187 °C {-304.6 °F)
Auto-ignition Temperature	:	> 288 °C {550.4 °F)
Decomposition Temperature	:	No data available
Flammability (solid, gas)	:	Extremely flammable gas
Lower Flammable Limit	:	3 %
Upper Flammable Limit	:	17 %
Vapor Pressure	:	40 mm Hg {0.8 psi)
Relative Vapor Density at 20°C	:	No data available
Relative Density	:	> 1 {air =1)
Specific Gravity	:	No data available
Solubility	:	Water: Not miscible or difficult to mix
Partition Coefficient: N-Octanol/Water	:	No data available
Viscosity	:	No data available
Explosive Properties	:	Contains gas under pressure; may explode if heated

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

Hazardous reactions will not occur under normal conditions.

10.2. Chemical Stability:

Contains gas under pressure; may explode if heated.

10.3. Possibility of Hazardous Reactions:

Hazardous polymerization will not occur.

10.4. Conditions to Avoid:

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

10.5. Incompatible Materials:

Halogenated compounds. Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products:

Thermal decomposition may produce: Carbon oxides {CO, CO_2). Hydrocarbons. Contains Sulfur, may release small amounts of hydrogen sulfide. Hydrogen sulfide is a highly flammable, explosive gas under certain conditions, is a toxic gas, and may be fatal. Gas can accumulate in the headspace of closed containers, use caution when opening sealed containers. Heating the product or containers can cause thermal decomposition of the product and release hydrogen sulfide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Toxic if inhaled.

LD50 and LC50 Data:

Wellhead Natural Gas (Sour)	
ATE US/CA (gas)	1,776.00 ppmV/4h

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Causes damage to organs {central nervous system) {Inhalation). May cause respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death. In elevated concentrations may cause

asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Symptoms/Injuries After Skin Contact: Contact with gas escaping the container can cause frostbite and freeze burns.

Symptoms/Injuries After Eye Contact: Contact with gas escaping the container can cause frostbite, freeze burns, and permanent eye damage. Contact causes severe irritation with redness and swelling of the conjunctiva.

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

Chronic Symptoms: Causes damage to organs {central nervous system) through prolonged or repeated exposure {Inhalation).

Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met. Toxic if inhaled.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Methane (74-82-8)	
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	539600 ppm {Exposure time: 2 h)
Ethane (74-84-0)	
LC50 Inhalation Rat	> 800000 ppm/4h
Propane (74-98-6)	
LC50 Inhalation Rat	> 800000 ppm {Exposure time: 15 min)
n-Butane (106-97-8)	
LC50 Inhalation Rat	30957 mg/m3 {Exposure time: 4 h)
LC50 Inhalation Rat	276798.8 ppm
Hydrogen sulfide (7783-06-4)	
LC50 Inhalation Rat	444 ppm/4h

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Very 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])
LC50 Fish 2	0.016 mg/l {Exposure time: 96 h - Species: Pimephales promelas [flow-through])

12.2. Persistence and Degradability

Wellhead Natural Gas (Sour)	
Persistence and Degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative Potential

Wellhead Natural Gas (Sour)	
Bioaccumulative Potential	Not established.
Methane (74-82-8)	
Partition coefficient n-octanol/water (Log Pow)	1.09
Ethane (74-84-0)	
Partition coefficient n-octanol/water (Log Pow)	1.09 – 2.8 at 20 °C / 68 °F {at pH 7)
Propane (74-98-6)	
Partition coefficient n-octanol/water (Log Pow)	1.09 at 20 °C / 68 °F {at pH 7)
Carbon dioxide (124-38-9)	
BCF Fish 1	{no bioaccumulation)
Partition coefficient n-octanol/water (Log Pow)	0.83

n-Butane (106-97-8)	
Partition coefficient n-octanol/water (Log Pow)	2.31 at 20 °C / 68 °F {at pH 7)
Hydrogen sulfide (7783-06-4)	
BCF Fish 1	{no bioaccumulation expected)
Partition coefficient n-octanol/water (Log Pow)	0.45 {at 25 °C / 77 °F)

12.4. Mobility in Soil
No additional information available

12.5. Other Adverse Effects
Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Sewage Disposal Recommendations: Do not dispose of waste into sewer. Do not empty into drains.
Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.
Additional Information: Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.
Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION
The shipping description{s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT
Proper Shipping Name : COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. {CONTAINS : Hydrogen sulfide ; Methane)
Reportable Quantity : >400 lbs RQ (H2S)
Hazard Class : 2.3
Identification Number : UN1953
Label Codes : 2.3, 2.1
Marine Pollutant ERG Number : Marine pollutant
: 119

14.2. In Accordance with IMDG
Proper Shipping Name : COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. {CONTAINS : Hydrogen sulfide ; Methane)
Reportable Quantity : >400 lbs RQ (H2S)
Hazard Class : 2.3 {2.1)
Identification Number : UN1953
Label Codes : 2.3, 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 : COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. {CONTAINS : Hydrogen sulfide ; Methane)
Reportable Quantity : >400 lbs RQ (H2S)
Hazard Class : 2.3 {2.1)
Identification Number : UN1953
ERG Code (IATA) : 10P

14.4 In Accordance with TDG

Proper Shipping Name	: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (CONTAINS : Hydrogen sulfide ; Methane)
Reportable Quantity	: >400 lbs RQ (H2S)
Hazard Class	: 2.3
Identification Number	: UN1953
Label Codes	: 2.3, 2.1
Marine Pollutant (TDG)	: Marine pollutant

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Wellhead Natural Gas (Sour)	
SARA Section 311/312 Hazard Classes	Physical hazard - Flammable (gases, aerosols, liquids, or solids) Physical hazard - Gas under pressure Health hazard - Specific target organ toxicity (single or repeated exposure) Health hazard - Serious eye damage or eye irritation Health hazard - Acute toxicity (any route of exposure) Health hazard - Simple asphyxiant

Methane (74-82-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Ethane (74-84-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Propane (74-98-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Carbon dioxide (124-38-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

n-Butane (106-97-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Nitrogen (7727-37-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Hydrogen sulfide (7783-06-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
SARA Section 313 - Emission Reporting	1 %

15.2. US State Regulations

Methane (74-82-8)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List

Ethane (74-84-0)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List

Propane (74-98-6)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List

Carbon dioxide (124-38-9)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List

n-Butane (106-97-8)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List

Nitrogen (7727-37-9)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
Hydrogen sulfide (7783-06-4)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

15.3. Canadian Regulations

Methane (74-82-8)
Listed on the Canadian DSL (Domestic Substances List)
Ethane (74-84-0)
Listed on the Canadian DSL (Domestic Substances List)
Propane (74-98-6)
Listed on the Canadian DSL (Domestic Substances List)
Carbon dioxide (124-38-9)
Listed on the Canadian DSL (Domestic Substances List)
n-Butane (106-97-8)
Listed on the Canadian DSL (Domestic Substances List)
Nitrogen (7727-37-9)
Listed on the Canadian DSL (Domestic Substances List)
Hydrogen sulfide (7783-06-4)
Listed on the Canadian DSL (Domestic Substances List)

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

Date of Preparation or Latest Revision : 02/23/2023

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

GHS Full Text Phrases:

H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H335	May cause respiratory irritation
H370	Causes damage to organs
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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

NA GHS SDS 2015 (Can, US)