


Product Name:	Natural Gas (with and without the addition of an odorant)
Synonyms:	Methane; NG, CNG when compressed
UN Number:	1971
Recommended Use:	Fuel Gas
Supplier Address:	MountainWest Pipeline 333 South State Street P.O. Box 45433 Salt Lake City, UT 84145-0433 801-324-4400
Chemical Emergency Phone No.:	1-801-324-4400

1. Hazards Identification

<p>EMERGENCY OVERVIEW</p> <p>DANGER!</p> <p>EXTREMELY FLAMMABLE GAS – FIRE AND EXPLOSION HAZARD</p>	
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Potential Health Effects

Primary Route of Exposure:	Inhalation
Inhalation:	Exposure to low concentrations by inhalation is considered to be non-toxic. At higher concentrations may displace oxygen in the air resulting in central nervous system depression similar to asphyxiation. Symptoms include headache, dizziness, nausea, fatigue, loss of consciousness and death.
Eye Contact:	Not irritating under most circumstances.
Skin Contact:	Not irritating under most circumstances. Not thought to be a hazard through skin contact.
Ingestion:	Not an expected route of exposure.
Chronic Effects:	No known systemic effects.
Aggravated Medical Conditions:	Respiratory disorders.

Other Hazards: Improperly adjusted appliances could result in natural gas not being burned completely, which may produce excess carbon monoxide. Under certain conditions, especially without proper ventilation, carbon monoxide could be released into an occupied area. Carbon monoxide is an invisible, odorless gas that is poisonous and may cause serious injury or, in extreme cases, even death. Symptoms include severe headache, nausea, vomiting and weakness.

2. Composition/Information on Ingredients

CHEMICAL	CAS NO.	VOLUME %
Methane	74-82-8	90.78 – 99.11
Ethane	74-84-0	0.26 – 5.18
Propane	74-98-6	0.16 – 1.59
Butanes (<i>n</i> -, & <i>iso</i> -)	106-97-8; 78-28-5	0.007 – 1.2
Nitrogen	7727-37-9	0.19 – 1.53
Carbon dioxide	124-38-9	0 – 2.02

3. First-aid Measures

Inhalation: If victim is unconscious, do not attempt rescue unless properly equipped with the necessary personal protective equipment. Remove victim to fresh air. Quickly restore and/or support breathing as required. (Begin CPR immediately for victim if breathing has stopped due to natural gas asphyxiation.) Obtain medical assistance.

Eye Contact: In the case of eye contact, rinse the eye with plenty of running water. Obtain medical assistance.

Skin Contact: Wash skin with plenty of running water. Obtain medical assistance if irritation persists.

4. Fire-fighting Measurements

Flammable Properties:	Extremely flammable gas
Suitable Extinguishing Media:	Flame can be extinguished with dry chemical or CO ₂ .
Explosion Hazards:	Natural gas readily forms flammable/explosive mixtures with air. Violent or explosive reactions can occur between natural gas and strong oxidizing agents (refer to Section 10.).

Hazardous Combustion Products:	Carbon dioxide and carbon monoxide.
Special PPE & Precautions for Fire-fighters:	<p>Re-ignition or explosion hazards exist if flame is extinguished without stopping the flow of gas and/or cooling the surroundings and eliminating the ignition source. Use water spray to cool surroundings.</p> <p>Wear approved respiratory equipment and full protective equipment as indicated for fighting fire.</p>

5. Accidental Release Measures

Personal Precautions:	<p>Shut off gas supply. Extinguish all open flames, prohibit smoking, and make certain that electrical switches or other possible sources of ignition are not operated. If indoors ventilate by opening doors and windows. Evacuate and clear a safe area.</p> <p>Wear self-contained breathing apparatus where warranted.</p>
Environmental Precautions:	May use water spray to cool surroundings.
Methods for Containment:	Stop the flow of gas. If release is from a cylinder or container, move the container outdoors if safe to do so, or evacuate if cylinder cannot be moved.
Methods for Cleanup:	Natural gas is lighter than air unless trapped, and will rise and dissipate rapidly into the atmosphere.
Important Information About Odorant Fade:	<p>Natural gas transported in distribution pipelines including compressed natural gas fueling facilities has been treated with the addition of an odorant which is intended to allow people to detect the presence of natural gas at approximately 0.5 to 1 % in the air. However, many factors may decrease the ability to detect the presence of leaking gas through smell alone. Some examples include: lack of sense of smell, impaired sense of smell due to</p>

allergies, colds, tobacco use, or odor fatigue. Other conditions may cause the loss of odorant resulting in “odor fade” in natural gas transported in distribution pipelines. Odor fade can occur in installations of new pipe, especially in larger diameter pipe. Also, certain types of soil may cause odor fade. Where an underground leak of natural gas is suspected, do not rely on sense of smell alone. Other indications include discolored or dead vegetation over or near installed pipes. If a leak is suspected, immediately contact the emergency number listed in Section 1.

6. Handling and Storage

Safe Handling:

Ground and bond all lines, containers and equipment used with natural gas to prevent static sparks. Use non-sparking tools. Keep away from flame, sparks and excessive temperatures.

Store only in approved containers or cylinders, use in well-ventilated areas. See also applicable OSHA regulations for the handling and storage of compressed gases which includes, but is not limited to, 29 CFR 1910.101.

Safe Storage:

Store in cool, well-ventilated areas, preferably outdoors. Use explosion proof electrical systems and equipment where required by applicable codes. Store apart from strong oxidizers.

When stored in cylinders, cylinders should be in an upright position with the valve protection cap in place, secured to prevent tip-over or falling.

7. Exposure Controls/Personal Protection

CHEMICAL	OCCUPATIONAL EXPOSURE LIMITS		
	OSHA	ACGIH	NIOSH
Methane	Not applicable	1000 ppm ¹	Not applicable
Ethane	Not applicable	1000 ppm ¹	Not applicable
Propane	1000 ppm	1000 ppm ¹	1000 ppm TWA 2100 ppm IDLH

Butanes (<i>n-</i> , & <i>iso-</i>)	Not applicable	1000 ppm ²	800 ppm ³ TWA
Nitrogen	Not applicable	Simple asphyxiant	N/A
Carbon dioxide	5000 ppm	5000 ppm TWA 30,000 ppm STEL	5000 ppm TWA 30,000 ppm STEL

¹As an aliphatic hydrocarbon gas (C₁ to C₄)

²Applies to n-Butane as an aliphatic hydrocarbon gas

³A NIOSH REL of 800 ppm as a time weighted average exposure has been established for both butanes listed.

Personal Protective Measures and Controls

Eye Protection: Safety glasses or face shields when working with pressurized gas lines or cylinders.

Skin and Body protection: Work gloves and steel-toed shoes are recommended for handling cylinders.

Where expanding gas may be generated, insulated gloves are recommended.

Where appropriate, wear personal protective equipment including flame retardant clothing to protect against burns.

Respiratory Protection: Use a NIOSH approved positive pressure air supply respirator equipped with an escape bottle, or a pressure demand self-contained breathing apparatus (SCBA) for uncontrolled escaping gas, where the concentration of gas is unknown, or where concentration exceeds the occupational exposure level.

Hearing Protection: Ear plugs and/or muffs recommended for release of high pressure gas.

Engineering and Ventilation Controls: Where applicable, adequate general or local exhaust ventilation should be used to maintain airborne concentrations below occupational exposure levels, to prevent the formation of explosive atmospheric concentrations, and to prevent the displacement of oxygen in confined areas.

8. Physical and Chemical Properties

Appearance & Odor:	Pipeline natural gas is colorless, odorless gas. The addition of an odorizing agent to distribution pipelines makes leaking gas detectable at 0.5 to 1 % gas in air. The odor is similar to the smell of skunk.
Boiling Point:	~ 100° F (~38° C)
Flash Point:	Not applicable.
Evaporation Rate:	Not applicable.
Flammability Limits in Air:	LEL = 5.0 % UEL = 15.0 %
Vapor Density:	0.610 to 0.690
Solubility in Water:	3 x 10 ⁻⁵ lb./lb.
Percent Volatile by Volume:	100 %
Vapor Pressure:	Not applicable.
Autoignition Temperature	1100° F to 1200° F (590° C - 650° C))
9. Stability and Reactivity	
Stability:	Stable under normal storage and handling conditions.
Conditions to Avoid and Incompatible Products:	Readily forms flammable or explosive mixtures with air. Keep away from ignition sources and strong oxidizers, especially chlorine, bromine pentafluoride, oxygen difluoride, nitrogen difluoride and chlorine dioxide.
Hazardous Decomposition Products;	Incomplete combustion may release carbon monoxide, carbon dioxide and smoke (non-combusted hydrocarbons).
Hazardous Polymerization:	None.
10. Toxicological Information	
Acute Toxicity:	No data available.
Chronic Toxicity:	No data available.

11. Ecological Information

No data available.

Natural gas is lighter than air and will normally dissipate quickly into the atmosphere unless obstructed.

12. Disposal Considerations

Waste Classification

If disposed of in a container, may be defined as a RCRA hazardous waste by the characteristic, "ignitability" (D001).

All disposal activities must comply with federal, state, and local regulations.

13. Transport Information

Natural gas is primarily delivered by pipeline transmission and distribution lines, when transported in a container or cylinder, the following applies:

UN Number:	UN1971
UN Proper Shipping Name:	UN1971, Natural gas, compressed, 2.1
Hazard Class:	2.1
DOT Shipping Label	FLAMMABLE GAS
Emergency Response Guide Number:	115

14. Regulatory Information

United States Regulations:

CERCLA:	None
SARA Title III, Section 311:	Acute: No
	Chronic: No
	Fire: Yes
	Pressure: Yes
	Reactive: No

CAA: Methane is subject to the reporting requirements of Section 112(r) with an RQ of 10,000 pounds

TSCA:	None
DOT:	49 CFR Parts 191-192
OSHA	29 CFR 1910.1200

15. Other Information

NFPA:	Health Hazard 1	Fire Hazard 4	Instability 0	Special Hazard ---
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HMIS: Health Hazard 1 Flammability 4 Physical Hazard 0 Personal Protection ---

Date of Issue: May 2013

Abbreviations and Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists
CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
DOT	U.S. Department of Transportation
HMIS	Hazardous Materials Information System
IDLH	Immediately Dangerous to Life
NIOSH	National Institute of Occupational Safety and Health
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
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ppm	parts per million
SARA	Superfund Amendments & Reauthorization Act
STEL	Short Term Exposure Limit (typically a 15-minute time weighted average)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (typically 8 hours)

Disclaimer: While proper care has been taken in the preparation of this Safety Data Sheet, this information is provided without warranty. Each individual utilizing this document should make an independent determination of the methods to be used to protect the public, workers and the environment.