



Emergency Contact: Chemtrec (800) 424-9300
Or Norco (208) 336-1643

1125 West Amity Road
Boise, ID 83705
(208) 336-1643

Methane

MATERIAL SAFETY DATA SHEET

Identification

Product Name: Methane
CAS Number: 74-82-8
Chemical Family: Gas
Chemical Formula: CH₄
Synonyms: Methyl Hydride
MSDS Identification Code/Number: 1971
Prepared By: Quality Department

Revision Date: 05/03/12
Last Review Date: 05/03/12

Composition, Information on Ingredients

Exposure Limits¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Methane Formula: CH ₄ CAS: 74-82-8 RTECS#: PA1490000	100%	None Established	TWA 1000 ppm	Not Available

¹ Refer to individual state or provincial regulations, as applicable, for limits that may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993).

³ As stated in the ACGIH 2007 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Hazards Identification

Emergency Overview:

Odorless, colorless, flammable gas. Dangerous fire and explosion hazard. Avoid heat, sparks and flames. Simple Asphyxiant-This product does not contain oxygen and may cause asphyxia if released in a confined area. Maintain oxygen levels above 19.5%. Contents under pressure. Use and store below 125^o F (52^o C).

Route of Entry:

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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Health Effects:

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None reported.		

Carcinogenicity: NTP: No IARC: No OSHA: No

Hazards Identification Continued

Eye Effects:

Contact with rapidly expanding gas near the point of release may cause frostbite.

Skin Effects:

Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.

Ingestion Effects:

Ingestion is unlikely. Gas at room temperature.

Inhalation Effects:

Methane is a simple asphyxiant. Exposure to high concentrations of this gas may exclude an adequate supply of oxygen. Oxygen levels should be maintained at greater than 19.5% at normal atmospheric pressure.

Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgment, depression of all sensations, emotional instability and fatigue. As asphyxiation progresses, nausea, vomiting, prostration and loss of consciousness may result, eventually leading to convulsions, coma and death.

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

Medical Conditions Aggravated by Exposure:

None known

NFPA Hazard Codes

Health: 0
Flammability: 4
Instability: 0

HMIS Hazard Codes

Health: 0
Flammability: 4
Physical Hazard: 3

Ratings System

0 = No Hazard
1 = Slight hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

Hazard ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, *CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition*.

First Aid Measures

Eye:

None normally required. Consult a physician if direct contact with pressurized material occurs. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Skin:

None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.

Ingestion:

Not anticipated; product is a gas.

Inhalation:

PROMPT REMOVAL FROM THE CONTAMINATED AREA AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration and supplemental oxygen. Keep victim warm and calm. Further treatment should be symptomatic and supportive. Seek immediate medical attention.

Fire Fighting Measures

Conditions of Flammability: Flammable gas		
Flash point: -306° F (-188° C)	Method: Closed cup	Autoignition Temperature: 1076°F (580°C)
LEL (%): 5	UEL (%): 15	
Hazardous combustion products: Carbon Monoxide, Carbon Dioxide		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: Not Available		

Fire and Explosion Hazards:

Flammable gas. Cylinder may rupture violently from pressure when involved in a fire situation.

Extinguishing Media:

Carbon dioxide, dry chemical or water spray.

Fire Fighting Instructions:

If possible, stop the flow of gas. Inerting the atmosphere to reduce oxygen levels may extinguish flame, allowing capping of leaking container. Do not attempt this unless specifically trained. Reduce the rate of flow and inject an inert gas, if possible, before completely stopping the flow to prevent flashback. Do not extinguish the fire until the supply is shut off as otherwise an explosive re-ignition may occur. If the fire is extinguished and the flow of gas continues, use increased ventilation to prevent build-up of explosive atmosphere. Use non-sparking tools to close container valves.

Keep containers cool with water spray. Continue to cool fire-exposed cylinders until well after flames are extinguished. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above liquid level with remote monitors. Limit the number of personnel in proximity of fire and evacuate surrounding areas in all directions. Continue to cool fire-exposed cylinders until well after flames are extinguished.

Accidental Release Measures

Extinguish all ignition sources. No smoking, flames, flares or sparks in hazard area. Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in section 1 or call your closest Norco/NorLab location.

Handling and Storage

Electrical classification:

Not Available

Earth ground and bond all lines and equipment associated with the system. All equipment should be non-sparking or explosion proof.

Methane is non-corrosive and may be used with any common structural material.

Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area. Use only in well-ventilated areas. Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavy traffic areas and emergency exits. Outside or detached storage is preferred. DO NOT allow the temperature where cylinders are stored to exceed 125° F (52°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Full and empty cylinders should be segregated.

Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to use point. Close valve after each use and when the container is empty. Do not drag, slide or roll cylinders on their sides. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to piping or systems.

For additional information, consult the Compressed Gas Association (CGA) pamphlet P-1.

Handling and Storage Continued

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

Exposure Controls, Personal Protection

Engineering Controls:

Provide general room ventilation and local exhaust to prevent accumulation above the exposure limit and to maintain oxygen levels above 19.5%. Mechanical ventilation should be designed in accordance with electrical codes.

Eye/Face Protection:

Safety goggles or glasses as appropriate for the job.

Skin Protection:

Protective gloves as appropriate for the job.

Respiratory Protection:

Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

Other/General Protection:

Safety shoes.

Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density (Air = 1)	: Not Available	
Evaporation point	: Not Available	
Boiling point	: -285.7	°F
	: -161.5	°C
Freezing point	: -296.5	°F
	: -182.5	°C
pH	: Not Applicable	
Specific gravity	: 0.55	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Negligible	
Odor threshold	: Not Applicable	
Odor and appearance	: Odorless, colorless gas	

Stability and Reactivity

Stability:

Stable

Incompatible Materials:

Oxygen and other oxidizers

Hazardous Polymerization:

Will not occur

Toxicological Information

No data given in the Registry of Toxic Effects of Chemical Substances (RTECS) or Sax, Dangerous Properties of Industrial Materials, 7th ed.

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate

Disposal Considerations

Do not attempt to dispose of waste or unused quantities in cylinders. Return in the shipping container, *properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place* to Norco/NorLab for proper disposal.

Transportation Information

Parameter	United States DOT	Canada TDG
Proper Shipping Name:	Methane, compressed	Methane, compressed
Hazard Class:	2.1	2.1
Identification Number:	UN 1971	UN 1971
Shipping Label:	Flammable Gas	Flammable Gas

Regulatory Information

U.S. Federal Regulatory Information:

Methane is listed under the accident prevention provisions of section 112 (r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds.

SARA Title III Notifications and Information:

SARA Title III – Hazard Classes:

Fire Hazard

Sudden Release of Pressure Hazard

SARA Title III – Section 313 Supplier Notification:

This product does not contain toxic chemicals subject to reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

California Proposition 65: This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

Other Information

Compressed gas cylinders must not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

Disclaimer of expressed and implied warranties:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).