

MATERIAL SAFETY DATA SHEET**PRODUCT NAME: METHANE****1. Chemical Product and Company Identification**

BOC Gases,
Division of
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 2
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (908) 464-8100

TELEPHONE NUMBER: (905) 501-1700

24-HOUR EMERGENCY TELEPHONE NUMBER:

24-HOUR EMERGENCY TELEPHONE NUMBER:

CHEMTREC (800) 424-9300

(905) 501-0802

EMERGENCY RESPONSE PLAN NO: 20101

PRODUCT NAME: METHANE

CHEMICAL NAME: CH₄

COMMON NAMES/SYNONYMS: Methyl Hydride

TDG (Canada) CLASSIFICATION: 2.1

WHMIS CLASSIFICATION: A, B1

PREPARED BY: Loss Control (908)464-8100/(905)501-1700

PREPARATION DATE: 6/1/95

REVIEW DATES: 6/7/96

2. Composition, Information on Ingredients

INGREDIENT	% VOLUME	PEL-OSHA ¹	TLV-ACGIH ²	LD ₅₀ or LC ₅₀ Route/Species
Methane FORMULA: CH ₄ CAS: 74-82-8 RTECS #: PA1490000	100	Simple Asphyxiant	Simple Asphyxiant	Not Available

¹ As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)² As stated in the ACGIH 1994-95 Threshold Limit Values for Chemical Substances and Physical Agents**3. Hazards Identification****EMERGENCY OVERVIEW**

Simple asphyxiant - maintain oxygen levels above 19.5%. Extremely flammable.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
Yes	No	Yes	Yes	No

MSDS: G-56

Revised: 6/7/96

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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

EYE EFFECTS:

None anticipated as product is a gas at room temperature.

SKIN EFFECTS:

None anticipated as product is a gas at room temperature.

INGESTION EFFECTS:

None known. Ingestion is unlikely.

INHALATION EFFECTS:

Methane and nitrogen are simple asphyxiants. Exposure to high concentrations of this gas mixture 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 judgement, 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.

NFPA HAZARD CODES

Health: 0
Flammability: 4
Reactivity: 0

HMIS HAZARD CODES

Health: 0
Flammability: 4
Reactivity: 0

RATINGS SYSTEM

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

4. First Aid Measures

EYES:

Never introduce ointment or oil into the eyes without medical advice! If pain is present, refer the victim to an ophthalmologist for treatment and follow up.

SKIN:

None needed as product is a gas at room temperature.

INGESTION:

Not normally required.

MSDS: G-56

Revised: 6/7/96

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO THIS PRODUCT. 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 has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive. Keep victim warm and quiet.

5. 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 dioxide, Carbon monoxide		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: Not Available		

FIRE AND EXPLOSION HAZARDS:

Methane is slightly heavier than air and may travel a considerable distance to an ignition source. Should flame be extinguished and flow of gas continue, increase ventilation to prevent flammable mixture formation in low areas or pockets.

EXTINGUISHING MEDIA:

Carbon dioxide, dry chemical or water spray.

FIRE FIGHTING INSTRUCTIONS:

If possible stop the flow of gas supply. Use water spray to cool adjacent areas. 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 to the fire. Evacuate surrounding areas to at least 3000 feet in all directions.

6. Accidental Release Measures

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 BOC location.

7. Handling and Storage**Electrical Classification:**

Class 1, Group D.

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

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

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure (<3000 psig) piping or

PRODUCT NAME: METHANE

systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-9, P-14, and Safety Bulletin SB-2.

8. Exposure Controls, Personal Protection

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	Simple Asphyxiant	Simple Asphyxiant	Not Available

¹ Refer to individual state or provincial regulations, as applicable, for limits which 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 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

ENGINEERING CONTROLS:

Hood with forced ventilation. Local exhaust to prevent dilution of oxygen levels below 19.5%. Mechanical in accordance with electrical codes.

EYE/FACE PROTECTION:

Safety goggles or glasses.

SKIN PROTECTION:

Plastic or rubber gloves. Protective gloves made of any suitable material.

RESPIRATORY PROTECTION:

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

OTHER/GENERAL PROTECTION:

Safety shoes, safety shower, eyewash "fountain."

9. 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 (H2O)	: Negligible	
Odor threshold	: Not Applicable	
Odor and appearance	: Odorless, colorless gas	

10. Stability and Reactivity

STABILITY:

Stable

INCOMPATIBLE MATERIALS:

Oxidizers

HAZARDOUS POLYMERIZATION:

Will not occur.

11. 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.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

PRODUCT NAME: METHANE

14. Transport 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

15. 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:

- Acute Health Hazard
- Fire Hazard
- Sudden Release of Pressure Hazard

16. Other Information

Compressed gas cylinders shall 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).