

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Compressed gas, flammable, n.o.s., (ethane, methane) MSDS# P-18-0168	Trade Name: NGA, Natural Gas Analyzer Mix
Chemical Name: NGA, Natural Gas Analyzer Mix	Synonym: NGA, Natural Gas Analyzer Mix Agilent Part Number: 5184-3536, 5184-3542
Chemical Formula: Not applicable.	Chemical Family: Not applicable.
Telephone: Emergencies:* 1-800-645-4633 CHEMTREC:* 1-800-424-9300 Routine: 1-800-PRAXAIR	Company Name: Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).*

2. Composition and Information on Ingredients

COMPONENTS	CAS NUMBER	CONCENTRATION, % by volume	OSHA PEL	ACGIH TLV-TWA
1) Nitrogen	7727-37-9	5.17	None currently established.	Simple asphyxiant.
2) Ethane	74-84-0	9	None currently established.	Simple asphyxiant.
3) Carbon dioxide	124-38-9	1.5	TWA: 5000 STEL: 30000 (ppm) from ACGIH (TLV) [United States] [2001]	
4) Propane	74-98-6	6	TWA: 5000 (ppm) from OSHA (PEL) [United States] TWA: 2500 (ppm) from ACGIH (TLV) [United States] [2001]	
5) Butane	106-97-8	2	TWA: 1000 (ppm) from OSHA (PEL) [United States]	
6) Isobutane	75-28-5	3	TWA: 800 (ppm) from ACGIH (TLV) [United States] [2001]	
7) Isopentane	78-78-4	0.5	None currently established.	None currently established.
8) Pentane	109-66-0	0.5	TWA: 600 (ppm) from ACGIH (TLV) [United States] [2001]	
9) Hexane	110-54-3	0.1	TWA: 1000 (ppm) from OSHA (PEL) [United States]	
10) Methane	74-82-8	72.2	TWA: 50 (ppm) from ACGIH (TLV) [United States] [2001] TWA: 500 (ppm) from OSHA (PEL) [United States]	None currently established. Simple asphyxiant.

3. Hazards Identification

Emergency Overview

DANGER! Flammable, high-pressure gas. May form explosive mixture with air. Can cause rapid suffocation. May cause dizziness and drowsiness. May irritate the eyes, skin, and respiratory tract. Self-contained breathing apparatus may be required by rescue workers.

THRESHOLD LIMIT VALUE: TLV-TWA Data from 2001 Guide to Occupational Exposure Values (ACGIH). TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

INHALATION: Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

SKIN CONTACT: No harm expected.

SWALLOWING: This product is a gas at normal temperature and pressure.

EYE CONTACT: No harm expected.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:

Contains material which may cause damage to the following organs: the nervous system.

OTHER EFFECTS OF OVEREXPOSURE:

None known.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

Repeated or prolonged exposure is not known to aggravate medical condition.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:

Not available - mixture not tested.

CARCINOGENICITY:

Components are not listed as carcinogens by OSHA, NTP or IARC.

4. First Aid Measures

INHALATION:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT:

Wash with soap and water. Get medical attention if discomfort persists.

SWALLOWING:

This product is a gas at normal temperature and pressure.

EYE CONTACT:

Flush with water. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Get medical attention if discomfort persists.

NOTES TO PHYSICIAN:

There is no specific antidote. Treatment of over-exposure should be directed at the control of symptoms and the clinical condition.

5. Fire Fighting Measures

FLASH POINT (test method)	Not applicable.	AUTOIGNITION TEMPERATURE	Not available - mixture not tested.
FLAMMABLE LIMITS IN AIR, % by volume:	LOWER: Not available - mixture not tested.	UPPER:	Not available - mixture not tested.

EXTINGUISHING MEDIA:

CO2, dry chemical, water spray or fog.

SPECIAL FIRE FIGHTING PROCEDURES:

DANGER! Flammable, high-pressure gas. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool, then move them away from fire area if without risk. Continue cooling water spray while moving cylinders. Do not extinguish any flames emitted from cylinders; allow them to burn out. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Forms explosive mixtures with air and oxidizing agents. Heat of fire can build pressure in cylinder and cause it to rupture. No part of a cylinder should be subjected to a temperature higher than 125°F (52°C). Cylinders are equipped with a pressure-relief device. (Exceptions may exist where authorized by DOT.) If venting or leaking gas catches fire, do not extinguish flames. Flammable gas may spread from leak, creating an explosive re-ignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point.

HAZARDOUS COMBUSTION PRODUCTS:

None.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

DANGER! **Flammable, high-pressure gas.** Forms explosive mixtures with air. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if without risk. Reduce gas with fog or fine water spray. Shut off flow if without risk. Ventilate area or move cylinder to a well-ventilated area. Flammable gas may spread from leak. Before entering area, especially confined areas, check atmosphere with an appropriate device.

WASTE DISPOSAL METHOD:

Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN STORAGE:

Store and use with adequate ventilation. Separate flammable cylinders from oxygen, chlorine, and other oxidizers by at least 20 ft. (6.1 m) or use a barricade of non-combustible material. This barricade should be at least 5 ft (1.53 m) high and have a fire resistance rating of at least 1/2 hour. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Post "No Smoking or Open Flames" signs in storage and use areas. There must be no sources of ignition. All electrical equipment in storage areas must be explosion-proof. Storage areas must meet national electric codes for Class 1 hazardous areas. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods. For full details and requirements, see NFPA 50A, published by the National Fire Protection Association.

PRECAUTIONS TO BE TAKEN IN HANDLING:

Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Electrical equipment must be non-sparking or explosion-proof. Leak check system with soapy water; never use a flame. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. For other precautions, see section 16.

For additional information on storage and handling, refer to Compressed Gas Association (CGA) pamphlet P-1, *Safe Handling of Compressed Gases in Containers*, available from the CGA. Refer to section 16 for the address and phone number along with a list of other available publications.

8. Exposure Controls/Personal Protection

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST: An explosion-proof local exhaust system is acceptable. See SPECIAL.

MECHANICAL (general): Inadequate.
See SPECIAL.

SPECIAL: Use only in a closed system.

OTHER: See SPECIAL.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Wear appropriate respirator when ventilation is inadequate.

Respiratory protection must conform to OSHA rules as specified in 29 CFR 1910.134.

SKIN PROTECTION: Wear work gloves when handling cylinders.

EYE PROTECTION: Wear safety glasses when handling cylinders.

Select in accordance with OSHA 29 CFR 1910.133.

OTHER PROTECTIVE EQUIPMENT: Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. Regardless of protective equipment, never touch live electrical parts

9. Physical and Chemical Properties

SPECIFIC GRAVITY (Air=1) at 21.1°C (70°F) and 1 atm:	Weighted average: 0.67
PERCENT VOLATILES BY VOLUME:	100%
APPEARANCE:	Colorless.
ODOR:	Odorless.
STATE:	Gas.

10. Stability and Reactivity

STABILITY:	The product is stable.
INCOMPATIBILITY (materials to avoid):	Oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:	Not available - mixture not tested.
HAZARDOUS POLYMERIZATION:	Will not occur.
CONDITIONS TO AVOID:	Not available - mixture not tested.

11. Toxicological Information

See section 3.

12. Ecological Information

No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals. The components of this mixture are not listed as marine pollutants by DOT.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

DOT/IMO SHIPPING NAME: Compressed gas, flammable, n.o.s., (ethane, methane)

HAZARD CLASS: 2.1	IDENTIFICATION # UN1954	PRODUCT RQ: Hexane has a DOT RQ of 5000 lb.
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SHIPPING LABEL(s): Flammable gas

PLACARD (when required): Flammable gas

SPECIAL SHIPPING INFORMATION:

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301 (b)].

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

HCS Classification

CLASS: Flammable gas.
CLASS: Target organ effects.

U.S. Federal Regulations

TSCA 8(b) inventory: Nitrogen; Ethane ; Carbon dioxide; Propane; Butane; Isobutane; Isopentane; Pentane; Hexane; Methane
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nitrogen: sudden release; Ethane : fire, sudden release, immediate health hazard; Carbon dioxide: sudden release, immediate health hazard; Propane: fire, sudden release, immediate health hazard; Butane: fire, sudden release, immediate health hazard; Isobutane: fire, sudden release, immediate health hazard, delayed health hazard; Isopentane: fire, sudden release, immediate health hazard, delayed health hazard; Pentane: fire, sudden release; Hexane: fire, immediate health hazard, delayed health hazard; Methane: fire, sudden release, immediate health hazard
SARA 313 toxic chemical notification and release reporting: Hexane 0.5%
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

State Regulations

Pennsylvania RTK: Nitrogen: (not a special hazard); Ethane : (not a special hazard); Carbon dioxide: (not a special hazard); Propane: (not a special hazard); Butane: (not a special hazard); Isobutane: (not a special hazard); Isopentane: (not a special hazard); Pentane: (not a special hazard); Hexane; Methane: (not a special hazard)
California prop. 65: No products were found.

16. Other Information

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:

Flammable high-pressure gas. Use only in a closed system. Use piping and equipment adequately designed to withstand pressures and temperatures to be encountered. Use only spark-proof tools and explosion-proof equipment. Keep away from heat, sparks, and open flame. Use piping and equipment adequately designed to withstand pressures to be encountered. **Gas can cause rapid suffocation due to oxygen deficiency.** Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. **Prevent reverse flow.** Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. **Never work on a pressurized system.** If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. **Never place a compressed gas cylinder where it may become part of an electrical circuit.**

MIXTURES:

When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

HAZARD RATING SYSTEM:

NFPA RATINGS:

HEALTH 1

HMIS RATINGS:

HEALTH 0

Product Name: NGA, Natural Gas Analyzer
Mix

MSDS# P-18-0168

Date: 6/14/2001

FLAMMABILITY 4

FLAMMABILITY 4

REACTIVITY 0

REACTIVITY 0

SPECIAL None.

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED: CGA-350

PIN-INDEXED YOKE: Not applicable.

ULTRA-HIGH-INTEGRITY CONNECTION: Not applicable.

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlets V-1 and V-7 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information about this product can be found in the following pamphlets published by the Compressed Gas Association, Inc. (CGA), 1725 Jefferson Davis Highway, Arlington, VA 22202-4102, Telephone (703) 412-0900.

- AV-1 Safe Handling and Storage of Compressed Gases
- P-1 Safe Handling of Compressed Gases in Containers
- V-1 Compressed Gas Cylinder Valve Inlet and Outlet Connections
- V-7 Standard Method of Determining Cylinder Valve Outlet Connections for Industrial Gas Mixtures
- Handbook of Compressed Gases, Third Edition

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

For more in-depth information for each component, refer to the pure product MSDS.

The information contained in this MSDS is generated from technical sources using the Chemmate Mixture MSDS system and the pure-product MSDS for each component. These mixtures are not tested as a whole for chemical, physical, or health effects.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair MSDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current Praxair MSDSs for these products, contact your Praxair sales representative or local distributor or supplier. If you have questions regarding Praxair MSDSs, would like the form number and date of the latest MSDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (Phone: 1-800-PRAXAIR; Address: Praxair Call Center, Praxair, Inc., PO Box 44, Tonawanda, NY 14150-7891).

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