

Product Name: Mixture of Argon, Carbon dioxide, and Nitrogen

MSDS# P-18-0546 For Bloxygen

Date: 1/23/2007

Bloxygen Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Bloxygen Compressed gas, n.o.s., (Nitrogen, Carbon dioxide, Argon)	Trade Name: Mixture of Argon, Carbon dioxide, and Nitrogen
MSDS# P-18-0546	
Chemical Name: Mixture of Argon, Carbon dioxide, and Nitrogen	Synonym: Not applicable.
Chemical Formula: Mixture of Ar & CO ₂ & N ₂	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
Argon	7440-37-1	0.0001-20		Simple asphyxiant.
Carbon dioxide	124-38-9	0.0001-20		ACGIH (United States, 2004). TWA: 5000 ppm 8 hour(s). STEL: 30000 ppm 15 minute(s). OSHA (United States). TWA: 5000 ppm
Nitrogen	7727-37-9	60-100		Simple asphyxiant.

3. Hazards Identification

Emergency Overview

CAUTION! High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.

THRESHOLD LIMIT VALUE: TLV-TWA Data from 2004 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:

No harm expected.

OTHER EFFECTS OF OVEREXPOSURE:

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Damage to retinal ganglion cells and central nervous system may occur.

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:

Not listed as carcinogen 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. No emergency care anticipated.

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.
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AUTOIGNITION TEMPERATURE	Not applicable.
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FLAMMABLE LIMITS IN AIR, % by volume:	LOWER: Not applicable.	UPPER: Not applicable.
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EXTINGUISHING MEDIA:

This mixture cannot catch fire. Use media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES:

CAUTION! High-pressure gas. Asphyxiant. Effects are due to lack of oxygen. 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. Self-contained breathing apparatus may be required by rescue workers.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Cylinders containing this mixture are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.)

HAZARDOUS COMBUSTION PRODUCTS:

None known.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

CAUTION! High-pressure gas. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

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, provincial, 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. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. 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.

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. 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 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.

Additional information on storage, handling, and use of this product is provided in **NFPA 55: *Standard for the Storage, Use, and Handling of Compressed and Liquefied Gases in Portable Cylinders***, published by the National Fire Protection Association.

8. Exposure Controls/Personal Protection

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST: Provide good ventilation to maintain more than 18% oxygen and less than 0.5% Carbon Dioxide (TWA)

MECHANICAL (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

SPECIAL: None.

OTHER: None.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Maintain oxygen supply 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: Not available.

PERCENT VOLATILES BY VOLUME: 100%

APPEARANCE: Colorless.

ODOR: Odorless.

STATE: Gas.

10. Stability and Reactivity

STABILITY: The product is stable.

INCOMPATIBILITY (materials to avoid): Not available - mixture not tested.

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.

Carbon dioxide is an asphyxiant. It initially stimulates respiration and then causes respiratory depression. High concentrations result in narcosis. Symptoms in humans are as follows:

EFFECTS:

Breathing rate increases slightly.

Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness.

Breathing increases to twice normal rate and become labored. Weak narcotic effect. Impaired hearing, headache, increased blood pressure and pulse rate.

Breathing increases to approximately four times normal rate, symptoms of intoxication become evident, and slight choking may be felt.

Characteristic sharp odor noticeable. Very labored breathing, headache, visual impairment, and ringing in the ears. Judgment may be impaired, followed within minutes by loss of consciousness.

Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation.

CO₂ CONCENTRATION:

1%

2%

3%

4 - 5%

5 - 10%

10 - 100%

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: Rare gases and nitrogen mixtures, compressed

HAZARD CLASS: 2.2	IDENTIFICATION #: UN 1950	PRODUCT RQ: None.
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SHIPPING LABEL(s): Non-flammable gas

PLACARD (when required): Non-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 Compressed Gas
Target organ effects

U.S. Federal Regulations TSCA 8(b) inventory: Argon; Carbon dioxide; Nitrogen
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: Argon: Sudden Release of Pressure; Carbon dioxide: Sudden Release of Pressure, Immediate (Acute) Health Hazard; Nitrogen: Sudden Release of Pressure
Form R - Reporting Requirements SARA 313 toxic chemical notification and release reporting: No products were found.

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: Argon: (not a special hazard); Carbon dioxide: (not a special hazard); Nitrogen: (not a special hazard)
California prop. 65: No products were found.

16. Other Information

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:

High pressure gas. 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 an environmentally safe 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
FLAMMABILITY 0
INSTABILITY 0
SPECIAL None.

HMIS RATINGS:

HEALTH 1
FLAMMABILITY 0
PHYSICAL HAZARD 3

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED: CGA-580
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), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, Fax: (703) 934-1830, website: www.cganet.com.

AV-1 Safe Handling and Storage of Compressed Gas
P-1 Safe Handling of Compressed Gases in Containers
P-14 Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmospheres
SB-2 Oxygen-Deficient Atmospheres
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, Fourth 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.

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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.

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