

## Praxair Material Safety Data Sheet

### 1. Chemical Product and Company Identification

<b>Product Name:</b> (Nitrogen, Oxygen)	<b>Trade Name:</b> Mixture of Oxygen and Nitrogen
<b>MSDS No.:</b> P-18-0153-A	
<b>Chemical Name:</b> Mixture of Oxygen and Nitrogen	<b>Synonym:</b> Not applicable.
<b>Chemical Formula:</b> Mixture of O <sub>2</sub> & N <sub>2</sub>	<b>Chemical Family:</b> Not applicable
<b>Telephone:</b>	<b>Company Name:</b> Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113
<b>Emergencies:*</b> 1-800-645-4633 <b>CHEMTREC:*</b> 1-800-424-9300 <b>Routine:</b> 1-800-PRAXAIR	

*\*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. Hazards Identification

#### Emergency Overview

**WARNING!** High-pressure gas. Mixtures with less than 19.5% oxygen can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.

**OSHA REGULATORY STATUS:**

The components of this mixture are considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**POTENTIAL HEALTH EFFECTS:**

**Effects of a Single (Acute) Overexposure:**

- Inhalation:** Asphyxiant (mixtures with less than 19.5% oxygen). 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:** Harmful if swallowed.
- Eye Contact:** No harm expected.

**EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:**

None known.

**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:**

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Not available - mixture not tested.

**CARCINOGENICITY:**

Not listed as carcinogen by OSHA, NTP or IARC.

**3. Composition and Information on Ingredients**

COMPONENTS	CAS NUMBER	CONCENTRATION % by Mole
Oxygen	7782-44-7	0.0001 - 23.5
Nitrogen	7727-37-9	76.5 - 99.999

**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:**

An unlikely route of exposure; 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**

**SUITABLE EXTINGUISHING MEDIA:**

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

**PRODUCTS OF COMBUSTION:**

None known.

**PROTECTION OF FIRE FIGHTERS:**

**WARNING! 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. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

**SPECIFIC PHYSICAL AND CHEMICAL HAZARDS:**

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.)

**PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:**

Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

## 6. Accidental Release Measures

### STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

#### Personal Precautions:

**WARNING!** 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.

#### Environmental Precautions:

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 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 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.

### 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.

### RECOMMENDED 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. See also Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

## 8. Exposure Controls/Personal Protection

COMPONENTS	CAS NUMBER	LC <sub>50</sub>	EXPOSURE LIMITS
Oxygen	7782-44-7	Not available.	Not available.
Nitrogen	7727-37-9	Not available.	Simple asphyxiant.

**THRESHOLD LIMIT VALUE:** TLV-TWA Data from 2007 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.

**IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH):** Not available.

### ENGINEERING CONTROLS:

**LOCAL EXHAUST:** Use a local exhaust system, if necessary, to maintain an adequate supply of oxygen in the worker's breathing zone.

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

**SPECIAL:** None.

**OTHER:** None.

**PERSONAL PROTECTION:**

**SKIN PROTECTION:** Wear work gloves when handling cylinders.

**EYE / FACE PROTECTION:** Wear safety glasses when handling cylinders.

Select in accordance with OSHA 29 CFR 1910.133.

**RESPIRATORY PROTECTION:** Wear appropriate respirator when ventilation is inadequate.

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

### 9. Physical and Chemical Properties

**SPECIFIC GRAVITY:** (Air=1) at 21.1°C (70°F) and 1 atm: The highest known value is >1 (Air = 1) (Oxygen). Weighted average: 0.92 (Air = 1)

**PERCENT VOLATILES BY VOLUME:** 100%

**APPEARANCE:** Colorless.

**ODOR:** Odorless.

**PHYSICAL STATE:** Gas.

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS IN AIR, % by volume:**

**LOWER:** Not applicable.

**UPPER:** Not applicable.

### 10. Stability and Reactivity

**CHEMICAL STABILITY:** The product is stable.

**INCOMPATIBLE MATERIALS:** Not available - mixture not tested.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Not available - mixture not tested.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Will not occur.

**CONDITIONS TO AVOID:** Not available - mixture not tested.

### 11. Toxicological Information

**ACUTE DOSE EFFECTS:** None Known - Mixture not tested.

**STUDY RESULTS:**

None known.

### 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:** (Nitrogen, Oxygen)

**HAZARD CLASS:** 2.2                      **IDENTIFICATION No.:** UN1956                      **PRODUCT RQ:** None.

**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

**U.S. Federal Regulations:** TSCA 8(b) inventory: Oxygen; 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: Oxygen: Fire hazard, Sudden release of pressure; Nitrogen: Sudden release of pressure

**Form R Reporting:** 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.

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State Regulations: Pennsylvania RTK: Oxygen: (not a special hazard); Nitrogen: (not a special hazard)

**WARNING:** This product contains chemical/chemicals known to the state of California to cause reproductive harm (female).: No products were found.

## 16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

### 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 0  
FLAMMABILITY 0  
INSTABILITY 0  
SPECIAL None.

#### HMIS RATINGS:

HEALTH 0  
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) 961-1831, website: [www.cganet.com](http://www.cganet.com).

AV-1 Safe Handling and Storage of Compressed Gas  
P-1 Safe Handling of Compressed Gases in Containers  
P-19 CGA Recommended Hazard Ratings for Compressed Gases  
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.**

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***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.

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