

Oxygen 0.0001% to 19.49% in Nitrogen

SDS Number: 2250

Revision Date: 5/17/2015

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1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Norlab - A Division of Norco, Inc.
898 W. Gowen Rd.
Boise, ID 83705

Contact: Quality Department
Phone: (208) 336-1643
Web: www.norlab-gas.com

Product Name: Oxygen 0.0001% to 19.49% in Nitrogen
Revision Date: 5/17/2015
Version: 1
SDS Number: 2250
CAS Number: MIXTURE
Chemical Family: Gas Mixture
Chemical Formula: O2 (0.0001% to 19.49%) in N2
Synonyms: None
Emergency Telephone Number: (800) 424-9300 (CHEMTREC)

2 HAZARDS IDENTIFICATION

Inhalation: Note: Not to be used as breathing air!

Mixtures which contain < 19.5% oxygen may act as simple asphyxiates. Effects of oxygen deficiency resulting from simple asphyxiates 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.

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

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

Ingestion: Ingestion is unlikely. Product is a gas at room temperature.

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NFPA:
HMIS III:

Health = 0, Fire = 0, Reactivity = 0
H0/F0/PH3



HMIS III	
HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARDS	3
PERSONAL PROTECTION	

PERSONAL PROTECTION INDEX			
A	☒	G	☒ + ☒ + ☒
B	☒ + ☒	H	☒ + ☒ + ☒ + ☒
C	☒ + ☒ + ☒	I	☒ + ☒ + ☒ + ☒
D	☒ + ☒ + ☒ + ☒	J	☒ + ☒ + ☒ + ☒ + ☒
E	☒ + ☒ + ☒ + ☒	K	☒ + ☒ + ☒ + ☒
F	☒ + ☒ + ☒ + ☒ + ☒	X	Consult your supervisor or S.O.P for "SPECIAL" handling directions
A	n	O	P
Safety Glasses	Splash Goggles	Face Shield & Eye Protection	Gloves
t	u	w	y
Dust Respirator	Vapor Respirator	Dust & Vapor Respirator	Full Face Respirator
q	r	s	
Boots	Synthetic Apron	Full Suit	
Additional Information			
Z			
Airline Hood or Mitten			

GHS Signal Word:
WARNING

GHS Hazard Pictograms:



GHS Classifications:
Physical, Gases Under Pressure, Compressed Gas

GHS Phrases:
H280 - Contains gas under pressure; may explode if heated

GHS Precautionary Statements:
P410+403 - Protect from sunlight. Store in a well ventilated place.

Additional Hazard Statements (USA):
Simple Asphyxiate - May displace oxygen and cause rapid suffocation.

Odorless, colorless nonflammable gas. Mixtures with less than 19.5% oxygen act as a simple asphyxiate. Effects may include headaches, dizziness and loss of consciousness. Non-toxic. Contents under pressure. Use and store below 125 °F (52 °C).

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COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CAS # I Percentage I Chemical Name

7727-37-9 I 80.51-99.9999% I Nitrogen
7782-44-7 I 0.0001-19.49% I Oxygen

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4 FIRST AID MEASURES

Inhalation: PROMPT 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. Unconscious persons should be moved to an uncontaminated area and, if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

Skin Contact: None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER.

Eye Contact: Obtain medical attention.

None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Ingestion: Not anticipated; product is a gas.

Most important symptoms and effects, both acute and delayed:

The most important known symptoms and effects are described in the labeling (see Section 2) and/or Section 11.

Indication of any immediate medical attention and special treatment needed:

No data available.

5 FIRE FIGHTING MEASURES

Flammability: Not flammable
Flash Point: NA
Flash Point Method: NA
Burning Rate: Not determined
Autoignition Temp: Not determined
LEL: NA
UEL: NA

Extinguishing Media:

Use as appropriate for surrounding material.

Special Hazards Arising From the Substance or Mixture:

Nitrogen gas
Nitrogen Oxides (NOx)
Oxygen gas

Advice for Firefighters:

If possible, stop the flow of gas supply. Use water spray to cool surrounding containers. Continue to cool surrounding containers until well after flames are extinguished. Firefighters should wear a full-face piece, NIOSH/MSHA-approved self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout gear.

Further Information:

If incinerated, may release toxic fumes.
Use water spray to cool unopened containers.
Cylinders may rupture violently from pressure when involved in a fire situation.
See Section 7 for more information on safe handling.
See Section 8 for more information on personal protection equipment.

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See Section 13 for disposal information.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

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 valve, contact the appropriate emergency telephone number listed in section 1 or call your closest Norco/Norlab location.

Environmental Precautions:

Prevent further release (leakage/spillage) if safe to do so.

Methods and Materials for Containments and Cleaning Up:

Contact the appropriate emergency telephone number listed in Section 1 or call your closest Norco/Noriab location.

Reference to Other Sections:

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for information on proper disposal.

7 HANDLING AND STORAGE

Handling Precautions:

Use only in well-ventilated areas. Valve protection caps must remain in place unless the cylinder 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 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 backflow into the cylinder.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid from 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.

Storage Requirements:

Non-hazardous. Ensure adequate ventilation. Do not use as breathing air. Gas mixture is non-corrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they include volume and lose their protective role (rust formation). Concentrations of SO₂, Cl₂, salt, etc. in the moisture enhances the rusting of metals in air.

Protect cylinders from physical damage. Store in a cool, dry, well ventilated area of non-combustible construction away from heavy traffic areas and emergency exits. 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. 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.

For additional recommendations, consult Compressed Gas Association Pamphlet P-1.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use

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local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure limits in Air below TLV & PEL limits. Maintain atmospheric Oxygen content at or above 19.5%

Personal Protective Equip:

Eye/face protection:

When using material use safety goggles and gloves as appropriate for the job. All safety equipment should be tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection:

Not required, but may be used. Gloves must be inspected prior to use. Dispose of contaminated gloves according to applicable laws and workplace practices.

Body Protection:

Not required, but may be used. Type of protective equipment should be selected based on concentration amount and conditions of use of this material. Use safety shoes.

Respiratory protection: Not required. A positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

Control of environmental exposure:

Prevent leakage or spillage if safe to do so.

Components with workplace control parameters:

Component(s): Nitrogen

CAS No(s): 7727-37-9

USA ACGIH (TWA/TLV): Simple asphyxiate (Nitrogen)

Biological occupational exposure limits:

Contains no substances with biological occupational exposure limit values.

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PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless gas	Odor:	Odorless
Physical State:	Gas	Molecular Formula:	MIXTURE
Odor Threshold:	Not determined	Solubility:	Slightly soluble
Particle Size:	Not determined	Softening Point:	Not determined
Spec Grav./Density:	Not determined	Percent Volatile:	100%
Viscosity:	Not determined	Heat Value:	Not determined
Sat. Vap. Conc.:	Not determined	Freezing/Melting Pt.:	-209.9 °C (-345.9 °F)
Boiling Point:	-195.8 °C (-320.4 °F)	Flash Point:	NA
Flammability:	(solid, gas): Not flammable	Octanol:	Not determined
Partition Coefficient:	Not determined	Vapor Density:	(air = 1): 0.97
Vapor Pressure:	(mm Hg @ 20 °C): Not determined	VOC:	NA
pH:	Not determined	Bulk Density:	NA
Evap. Rate:	Not determined	Auto-Ignition Temp:	Not determined
Molecular weight:	MIXTURE	UFL/LFL:	NA
Decomp Temp:	Not determined		

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10 STABILITY AND REACTIVITY

Stability: Product is stable under normal conditions.
Conditions to Avoid: Incompatibilities, flames, ignition sources.
Materials to Avoid: This product will slowly react with phosphorous, some organic materials and powdered metals.
Hazardous Decomposition: None.
Hazardous Polymerization: Will not occur.

11 TOXICOLOGICAL INFORMATION

Component(s): Nitrogen; Oxygen
CAS No(s): 7727-37-9; 7782-44-7

Acute Toxicity: Product is non-toxic.

Skin Corrosion/Irritation: No irritation.

Serious Eye Damage/Eye Irritation: No irritation.

Respiratory or Skin Sensitation: No data available.

Germ Cell Mutagenicity: No data available.

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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

Specific Target Organ Toxicity - Single Exposure: High concentrations of Nitrogen and low concentrations of oxygen in these gas mixtures may exclude adequate supply of oxygen to the lungs which causes dizziness, deeper breathing due to air hunger, possible nausea and eventual unconsciousness.

Specific Target Organ Toxicity - Repeated Exposure: No data available.

Aspiration Hazard: No data available.

Additional Information:

Component: Nitrogen; RTECS: QW9700000
Component: Oxygen; RTECS: RS2060000

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ECOLOGICAL INFORMATION

Component(s): Nitrogen; Oxygen
CAS No(s): 7727-37-9; 7782-44-7

Toxicity:

Toxicity to fish:

Product is non-toxic to fish.

Toxicity to daphnia and other aquatic invertebrates:

Product is non-toxic to daphnia and other aquatic invertebrates.

Persistence and Degradability:

No data available.

Bioaccumulative potential:

Will not bioconcentrate.

Mobility in Soil:

No data available.

Results of PBT and vPvB assessment:

Not required/conducted.

Other Adverse Effects:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Product does not contain Class I or Class II ozone depleting substances.

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DISPOSAL CONSIDERATIONS

Product and Contaminated Packaging: Do not attempt to dispose of residual waste or unused quantities in returnable containers. Return in the shipping container, properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to Norlab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations, or returned to Norlab.

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TRANSPORT INFORMATION

DOT Class: Non-Flammable Gas (2.2) #2.2

UN #: UN 1956, Class: 2, Proper Shipping Name: Compressed gas, n.o.s. (Oxygen, Nitrogen)

DOT (US)

UN Number: 1956

Class: 2.2

ERG #: 122

Proper Shipping Name: Compressed gas, n.o.s. (Oxygen, Nitrogen)

IMDG

UN Number: 1956

Class: 2.2

EMS-No: F-C, S-V

Proper Shipping Name: Compressed gas, n.o.s. (Oxygen, Nitrogen)

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IATA

UN Number: 1956

Class: 2.2

Proper Shipping Name: Compressed gas, n.o.s. (Oxygen, Nitrogen)

Canada TDG

UN Number: 1956

Class: 2.2

Proper Shipping Name: Compressed gas, n.o.s. (Oxygen, Nitrogen)



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REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

*Nitrogen (7727379 80.51-99.9999%) MASS, NJHS, PA, TSCA

*Oxygen (7782447 0.0001-19.49%) MASS, NJHS, PA, SARA311/312, TSCA

REGULATORY KEY DESCRIPTIONS

MASS = MA Massachusetts Hazardous Substances List
NJHS = NJ Right-to-Know Hazardous Substances
PA = PA Right-To-Know List of Hazardous Substances
SARA311/312 = SARA 311/312 Toxic Chemicals
TSCA = Toxic Substances Control Act

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OTHER INFORMATION

Disclaimer:

The data in this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material in any process. The information set forth herein is furnished free of charge and is based on technical data that Norlab believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside of Norlab's control, Norlab makes no warranties, expressed or implied, and assumes no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under, or a recommendation to infringe upon, any patents.

Preparation Information:

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