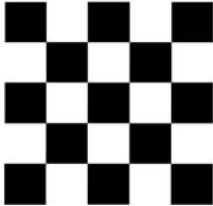


PRODUCT NAME: OXYGEN IN HELIUM MIXTURES

### 1. Product and Company Identification

**INDIANA  
OXYGEN**

AS PACKAGED  
AND DISTRIBUTED  
BY



**INDIANA OXYGEN COMPANY**  
**6099 WEST CORPORATE WAY**  
**INDIANAPOLIS, INDIANA 46278**  
**PHONE 1-317-290-0003**

**Emergency Contact: Infotrak**  
**1-800-535-5053**

**PRODUCT NAME:** OXYGEN IN HELIUM MIXTURES  
**CHEMICAL NAME:** Oxygen in Helium  
**COMMON NAMES/SYNONYMS:** Diving Gas Mixture  
**TDG (Canada) CLASSIFICATION:** 2.2 (5.1) (O<sub>2</sub> > 23.5%)  
**WHMIS CLASSIFICATION:** A, C (O<sub>2</sub> > 23.5%)

**PREPARED BY:** Loss Control (908)464-8100/(905) 501-1700  
**PREPARATION DATE:** 6/1/95  
**REVIEW DATES:** 06/28/04

### 2. Composition, Information on Ingredients

#### EXPOSURE LIMITS<sup>1</sup>:

INGREDIENT	% VOLUME	PEL-OSHA <sup>2</sup>	TLV-ACGIH <sup>3</sup>	LD <sub>50</sub> or LC <sub>50</sub> Route/Species
Helium FORMULA: He CAS: 7440-59-7 RTECS #: MH6520000	60.0 to 80.0	None Established	Simple Asphyxiant	Not Available
Oxygen FORMULA: O <sub>2</sub> CAS: 7782-44-7 RTECS #: RS2060000	20.0 to 40.0	None Established	None Established	Not Available

<sup>1</sup> Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.

<sup>2</sup> As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

<sup>3</sup> As stated in the ACGIH 2004 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

### 3. Hazards Identification

#### EMERGENCY OVERVIEW

Odorless, colorless, nonflammable gas. Mixtures which contain > 23.5% oxygen act as oxidizers – will accelerate combustion and increase the risk of fire and explosion in combustible or flammable materials. Not toxic. Prolonged inhalation of high concentrations may cause coughing and lung effects. Contents under pressure. Use and store below 125 °F.

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**ROUTE OF ENTRY:**

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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**HEALTH EFFECTS:**

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects Other agents that effect the respiratory system		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

**EYE EFFECTS:** None known for gas. Contact with rapidly expanding gas near the point of release may cause frostbite.

**SKIN EFFECTS:** None known for gas. Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.

**INGESTION EFFECTS:** None known or expected.

**INHALATION EFFECTS:** BOC makes no recommendations or suggestions as to the depth of sea water in which these mixtures should be used; it merely warrants that it has used its best efforts to prepare the mixture of oxygen in helium as it is described on the label. **DO NOT USE THE PRODUCT IF THE COMPONENT CONCENTRATION DATA ARE NOT CLEARLY LEGIBLE ON THE LABEL.**

Breathing mixtures of helium with adequate oxygen to support life modifies the voice sound so that it is higher pitched. Oxygen is not toxic. Prolonged inhalation of high oxygen concentrations (> 75%) may affect coordination, attention, and cause tiredness or respiratory irritation.

Oxygen may have harmful effects when inhaled at elevated pressures. Depending upon pressure and duration of exposure, pure oxygen at elevated pressures (i.e.: divers) may cause cramps, dizziness, difficulty breathing, convulsions, edema, and death.

Elevated oxygen concentrations in incubators has caused visual impairment and blindness in premature infants. High oxygen concentrations primarily affect eyes which are not fully developed (see Section 11).

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** None known.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Not expected to be toxic to fish and wildlife.

#### **4. First Aid Measures**

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

**SKIN:** None required for gas. For frostbite, immerse skin in lukewarm water. **DO NOT USE HOT WATER.** Obtain medical attention.

**INGESTION:** No special requirements.

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**INHALATION:** PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE WHEN OXYGEN IS INHALED UNDER PRESSURE (i.e.: as in scuba diving). Conscious persons should be removed from exposure and inhale fresh air. Quick removal from the source of exposure or contaminated area is most important. Further treatment should be symptomatic and supportive.

### 5. Fire Fighting Measures

Conditions of Flammability: Not flammable, oxidizer (O <sub>2</sub> > 23.5%)		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(%): None		UEL(%): None
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

**FIRE AND EXPLOSION HAZARDS:** Mixture which contain > 23.5% oxygen will accelerate fire and support combustion or initiate combustion/explosion of organic matter and other oxidizable material. Cylinder may vent rapidly or rupture violently from pressure when involved in a fire situation.

**EXTINGUISHING MEDIA:** Nonflammable. Use any media suitable for surrounding fire. Use water spray to cool fire exposed containers.

**FIRE FIGHTING INSTRUCTIONS:** For mixtures which contain > 23.5% oxygen, stop the flow of gas accelerating fire. Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

### 6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment (See Section 8). Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. A leak of oxidizing gas mixtures near combustible or flammable materials may present a severe fire or explosion hazard. Eliminate all ignition sources. 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:** Nonhazardous.

These mixtures are noncorrosive and may be used with any common structural material. If oxygen concentration exceeds 23.5%, systems MUST be cleaned for oxygen service prior to use!

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 reducing regulator when connecting cylinder to lower pressure 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 back flow into the system. Use a "first in-first cut" inventory system to prevent full cylinders being stored for excessive periods of time. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

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Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas, emergency exits, flammables and combustibles. 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 being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in areas where oxidizing mixtures are used or stored. There should be no ignition sources in use and storage areas.

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

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

## 8. Exposure Controls, Personal Protection

**ENGINEERING CONTROLS:** Use local exhaust in combination with general ventilation as necessary to maintain oxygen levels above 19.5% and below 23.5%.

**EYE/FACE PROTECTION:** Safety goggles or glasses.

**SKIN PROTECTION:** Protective gloves appropriate for the job.

**RESPIRATORY PROTECTION:** For emergency release use a positive pressure NIOSH approved air-supplying respirator systems (SCBA or airline/escape bottle) using at a minimum Grade D air.

**OTHER/GENERAL PROTECTION:** Safety shoes, eyewash station.

## 9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density at 70 °F (Air = 1)	: 0.35	
Evaporation point	: Not Available	
Boiling point	: Not Available	
Freezing point	: Not Available	
pH	: Not Applicable	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H <sub>2</sub> O)	: Slight	
Odor threshold	: Not Applicable	
Odor and appearance	: Odorless, colorless gas	

## 10. Stability and Reactivity

**STABILITY:** Stable

**INCOMPATIBLE MATERIALS/CONDITIONS:** Will support combustion. Keep mixtures with oxygen concentrations > 23.5% away from flammable, organic, and combustible materials.

**PRODU NAME: OXYGEN IN HELIUM MIXTURES**

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

**HAZARDOUS POLYMERIZATION:** Will not occur.

## 11. Toxicological Information

**SKIN AND EYE:** The incompletely developed retinal circulation is more susceptible to toxic levels of oxygen. In premature infants, arterial oxygen tension above 150 mm Hg may cause retrolental fibroplasia. Permanent blindness may occur several months later. One case of severe retinal damage in an adult was reported. An individual suffering from myasthenia gravis developed irreversible retinal atrophy after breathing 80% oxygen for 150 days.

**INHALATION:** Human volunteers which inhaled 90-95% oxygen through a face mask for 6 hours showed signs of tracheal irritation and fatigue. Other symptoms (which might have been caused by placing a tube into the trachea during the experiment) included: sinusitis, conjunctivitis, fever, and symptoms of acute bronchitis.

**OTHER:** Not given.

## 12. Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate.

## 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.

## 14. Transport Information \*

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Rare gases and oxygen mixtures, compressed /Compressed gases, oxidizing, n.o.s. (Oxygen, Helium)	Rare gases and oxygen mixture/ Compressed gas, oxidizing, n.o.s. (Oxygen)
HAZARD CLASS:	2.2/ 2.2(5.1)	2.2/2.2 (5.1)
IDENTIFICATION NUMBER:	UN 1980/UN 3156	UN 1980/UN 3156
SHIPPING LABEL:	NONFLAMMABLE GAS/ NONFLAMMABLE GAS, OXIDIZER	NONFLAMMABLE GAS/ NONFLAMMABLE GAS, OXIDIZER

\* Transport information depends on the oxygen concentration. At concentrations greater than 23.5% oxygen, this product is classified as Compressed gases, oxidizing, n.o.s. At oxygen concentrations less than or equal to 23.5%, this product is classified as Rare Gases and Oxygen Mixtures, Compressed.

## 15. Regulatory Information

### SARA TITLE III NOTIFICATIONS AND INFORMATION

#### SARA TITLE III - HAZARD CLASSES:

Fire Hazard (O<sub>2</sub> > 23.5%)

Sudden Release of Pressure Hazard

**PRODU NAME: OXYGEN IN HELIUM MIXTURES**

**SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:**

This product does not contain toxic chemicals subject to reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

**U.S. TSCA/Canadian DSL:** All ingredients are listed on the U.S. Toxic Substances Control Act (TSCA) inventory or exempt from listing and on the Canadian Domestic Substance List (DSL).

**California Proposition 65:** This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

**Canadian Controlled Products Regulations (CPR):** This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

**16. Other Information**

<b>NFPA HAZARD CODES</b>	<b>HMIS HAZARD CODES</b>	<b>RATINGS SYSTEM</b>
Health: 0	Health: 0	0 = No Hazard
Flammability: 0	Flammability: 0	1 = Slight Hazard
Instability: 0	Physical Hazard: 3	2 = Moderate Hazard
OXIDIZER (> 23.5% O <sub>2</sub> )		3 = Serious Hazard
		4 = Severe Hazard

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2004, *CGA Recommended Hazard Ratings for Compressed Gases, 2<sup>nd</sup> Edition*.

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

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:**

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