



Material Safety Data Sheet

OXYGEN

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SECTION #1 - IDENTIFICATION

Product: OXYGEN

CAS Number: 7782-44-7
Product Code: MSDS CODE G-1
Chemical Family: Oxidizer
Chemical Formula: O₂

Synonyms: G-1

PA Hazard Rating - Health: 3 High
- Fire: 0 Negligible
- Reactivity: 0 Negligible
- Special: Oxy

SECTION #2 - CHEMICAL COMPONENTS

Component: OXYGEN

CAS Number: 7782-44-7

Percent of Mixture: 99.6000 to 100.0000

SECTION #3 - PHYSICAL DATA

Boiling Point: -297.3°F - 182.9°C
Melting Point: -361.8°F - 218.8°C
Vapor Pressure: Above critical temp.
Specific Gravity: 1.11 (gas, air=1.0)
Solubility (H₂O): Slightly soluble

Appearance

Colorless gas.

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SECTION #3 - PHYSICAL DATA Continued...Odor

Odorless.

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

Flash Point: N/A

Lower Explosive Limit (%): N/A

Upper Explosive Limit (%): N/A

Fire and Explosion Hazards

Electrical Classification: Nonhazardous

Vigorously accelerates combustion.

Extinguishing Media

Copious quantities of water (or the suitable extinguishing agent for the combustible material) for fires with oxygen as the oxidizer.

Special Fire Fighting Instructions

If possible, stop the flow of oxygen which is supporting the fire.

SECTION #5 - EXPOSURE and EFFECTS - INHALATIONRoutes of Exposure - Inhalation

High concentrations (greater than 75%) causes symptoms of hyperoxia which included cramps, nausea, dizziness, hypothermia, ambyopia, respiration difficulties, bradycardia, fainting spells and convulsions capable of leading to death. The property is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75 percent present a risk of inflammation of organic matter in the body.

First Aid - Inhalation

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

SECTION #5 - EXPOSURE and EFFECTS - INHALATION Continued...**First Aid - Inhalation**

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. The physician should be informed that the victim could be experiencing hyperoxia.

SECTION #5 - EXPOSURE and EFFECTS - SKIN**Routes of Exposure - Skin**

Contact with liquid product may cause tissue freezing.

First Aid - Skin

For dermal contact or frostbite: Remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing.

SECTION #5 - EXPOSURE and EFFECTS - EYES**Routes of Exposure - Eyes**

Contact with liquid product may cause tissue freezing.

First Aid - Eyes

Never introduce ointment or oil into the eyes without medical advice! In case of freezing or cryogenic "burns" caused by rapidly evaporating liquid, DO NOT WASH THE EYES WITH HOT OR EVEN TEPID WATER! Remove victim from the source of contamination. Open eyelids wide to allow liquid to evaporate. If pain is present, refer the victim to an ophthalmologist for treatment and follow up. If the victim cannot tolerate light, protect the eyes with a light bandage.

SECTION #5 - MISCELLANEOUS TOXICOLOGICAL INFORMATION

Carcinogenicity: NTP - No

IARC - No

OSHA - No

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: Stable

Conditions to Avoid (Stability)

Contact with all flammable materials.

Incompatible Materials

All flammable materials.

Hazardous Polymerization: Will Not Occur

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES

Steps to be Taken in The Event of Spills, Leaks, or Release

Stationary customer site vessels should operate in accordance with the manufacturer's and Airco's instruction. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest Airco location immediately.

Waste Disposal Methods

Do not attempt to dispose of 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 Airco for proper disposal.

SARA Hazard Classes: Fire Hazard
Sudden Release of Pressure Hazard

SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

Use local exhaust to prevent accumulation of high concentrations that increase the oxygen level in air to more than 25%.

Eye Protection

Safety goggles or glasses plus a face shield.

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SECTION #8 - SPECIAL PROTECTIVE MEASURES Continued...Skin Protection

Loose fitting and insulated.

Other Protection

Safety shoes, safety shower.

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLINGStorage & Handling Conditions

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 low 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 back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°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 the storage area or use area. There should be no sources of ignition in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14, and safety bulletin SB-2.

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.

SECTION #10 - SHIPPING INFORMATION

Proper Shipping Name: Oxygen or Oxygen, Compressed

Hazard Class: Nonflammable Gas
DOT Identification Number: UN1072
DOT Shipping Label: Oxidizer

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SECTION #10 - SHIPPING INFORMATION Continued...**SECTION #11 - MISC COMMENTS & REFERENCE DOCUMENTATION**

Carbon steels and low alloy steels are acceptable for use at lower pressures

For high pressure applications stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass bronze, silicon alloys, Monel (R), Inconel (R) and beryllium. Lead and silver or lead tin alloys are good gasket materials. Teflon (R), Teflon (R) composites, or Kel-F (R) are preferred non-metallic gasket materials.

Check with the supplier to verify oxygen compatability for the service conditions.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14 and G-4.

Oxygen should not be used as a substitute for compressed air in pneumatic equipment since this type generally contains flammable lubricants. Equipment to contain oxygen must be "cleaned for oxygen service." Compressed gas vessels should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas vessel which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

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