

MATERIAL
SAFETY
DATA SHEET

PRODUCT NAME Oxygen	CAS# 7782-44-7
TRADE NAME AND SYNONYMS Oxygen; Oxygen, Compressed	DOT I.D. NO. UN 1072
CHEMICAL NAME AND SYNONYMS Oxygen	DOT HAZARD CLASS Division 2.2
ISSUE DATE AND REVISIONS Revised June 2007	FORMULA O ₂
	CHEMICAL FAMILY Oxidizer

HEALTH HAZARD DATA

<p>TIME WEIGHTED AVERAGE EXPOSURE LIMIT</p> <p>None established (ACGIH 1990-1991). Oxygen is the “vital element” in the atmosphere in which we live and breathe (approximately 21 molar % of the atmosphere). OSHA 1989 does not list a TWA for oxygen.</p>
<p>SYMPTOMS OF EXPOSURE</p> <p>Breathing high concentrations (greater than 75 molar percent) causes symptoms of hyperoxia which includes cramps, nausea, dizziness, hypothermia, amblyopia, respiratory difficulties, and capable of leading to death.</p>
<p>TOXICOLOGICAL PROPERTIES</p> <p>The property is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75 molar percent present a risk of inflammation of organic matter in the body.</p> <p>Oxygen is not listed in the IARC, NTP or by OSHA as a carcinogen or potential carcinogen.</p> <p>Persons in ill health where such illness would be aggravated by exposure to Oxygen should not be allowed to work with or handle this product.</p>
<p>RECOMMENDED FIRST AID TREATMENT</p> <p>PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE COGNIZANT OF EXTREME FIRE HAZARD ASSOCIATED WITH OXYGEN-RICH ATMOSPHERES.</p> <p><u>Inhalation:</u> Conscious persons should be assisted to an uncontaminated area and inhale fresh air. They should be kept warm and quiet. The physician should be informed that the victim is experiencing hyperoxia. Unconscious persons should be moved to an uncontaminated area and given assisted respiration. Further treatment should be symptomatic and supportive.</p>

Oxygen vigorously accelerates combustion. Contact with all flammable materials should be avoided. Some materials, which are not flammable in air will burn in pure oxygen or oxygen-enriched atmospheres.

PHYSICAL DATA

BOILING POINT -297.3°F	LIQUID DENSITY AT BOILING POINT 1141 kg/m ³
VAPOR PRESSURE @ 70°F Above the critical temp. of -181.1 °F	GAS DENSITY AT 70°F, 1 atm 1.326 kg/m ³
SOLUBILITY IN WATER Slightly	FREEZING POINT -361.8°F
EVAPORATION RATE N/A	SPECIFIC GRAVITY (AIR=1) 1.11 @ 70°F
APPEARANCE AND ODOR Colorless, odorless gas	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME LEL N/A UEL N/A
EXTINGUISHING MEDIA Copious quantities of water for fires with oxygen as the oxidizer.		ELECTRICAL CLASSIFICATION Nonhazardous
SPECIAL FIRE FIGHTING PROCEDURES If possible, stop the flow of oxygen which is supporting the fire.		
UNUSUAL FIRE AND EXPLOSION HAZARDS Vigorously accelerates combustion.		

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		N/A
Stable	X	
INCOMPATIBILITY (Materials to avoid) All flammable materials.		
HAZARDOUS DECOMPOSITION PRODUCTS None		
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur		N/A
Will Not Occur	X	

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) N/A	
VENTILATION See Local Exhaust	SPECIAL N/A
MECHANICAL (Gen.) N/A	OTHER N/A
LOCAL EXHAUST To prevent accumulation above 25 molar percent.	
PROTECTIVE GLOVES Any material; as required	
EYE PROTECTION Safety goggles or glasses	
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in container or container valve, contact HSG for special advice.

WASTE DISPOSAL METHOD

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 your supplier. For emergency disposal assistance, contact HSG for special advice.

SPECIAL PRECAUTIONS***SPECIAL LABELING INFORMATION**

DOT Shipping Name: Oxygen, Compressed
 DOT Shipping Label: Nonflammable Gas, Oxidizer

DOT Hazard Class: Division 2.2
 I.D. No.: UN 1072

SPECIAL HANDLING RECOMMENDATIONS

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 (<3,000 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 cylinder.

SPECIAL STORAGE RECOMMENDATIONS

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 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.

SPECIAL PACKING RECOMMENDATIONS

Carbon steels and low alloy steels are acceptable for use at lower pressures. For high pressure applications use stainless steels, copper and its alloys, nickel and its alloys, brass, bronze, silicon alloys, etc.

It should be recognized that the ignition temperature of metals and non-metals in pure oxygen service decreases with increasing oxygen pressure.

OTHER RECOMMENDATIONS OR PRECAUTIONS

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 cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Law.

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