



UN 1072  
HAZCHEM 2PE  
CLASS 2.2 sub 5.1

PI 10/16/E

COMPRESSED OXYGEN

### TECHNICAL SPECIFICATION

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Oxygen > 99.5%  
Moisture < 10 ppm

#### PHYSICAL DATA

Chemical Symbol O<sub>2</sub>  
Boiling Point -183.0°C  
Relative Density (Air = 1) 1.105  
Molecular Weight 31.999  
Critical Temperature -118.8°C  
Flashpoint Non-flammable  
Density of Gas (@101.3 kPa & 15°C) 1.355 kg/m<sup>3</sup>  
Density of Liquid (B.Pt.) 1141 kg/m<sup>3</sup>  
Specific Volume (@ 101.3 kPa & 15°C) 0.738 m<sup>3</sup>/kg

#### PROPERTIES

Oxygen gas is odorless and tasteless and constitutes approx. 21% of volume of air. It supports combustion and sustains life. In liquid form it is pale blue in color.

#### USES

Oxygen sustains life, supports combustion, is used in steel making and, in combination with a fuel gas, is used for welding, cutting, heating and brazing. Using oxygen in the place of air can increase performance and capital efficiency in many industries and can enable carbon capture processes. It is often used in boilers and process heaters, industrial fermenters and gasification processes to improve productivity. Critical for cell growth applications, oxygen is used in fermenters and bioreactors. Also used in manufacture of methanol, ethylene oxide, titanium dioxide and for the enrichment of furnace atmospheres for smelting of copper, zinc etc. In the paper industry oxygen is employed for bleaching pulp, oxidization of black liquor and purification of wastes. Oxygen is used as a plasma cutting gas, an assist gas for laser cutting, and is sometimes added in small quantities to shielding gases. Oxygen is widely used in refineries to increase the capacity of Fluid Catalytic Cracking (FCC) plants and Sulfur Recovery Units (SRU), and to improve wastewater treatment operations. Used as an industrial gas, oxygen can supplement or even replace air in the aeration basin to maximize treatment capacity, minimize VOC emissions, reduce odor and foam, and increase flexibility. It is also used as a feed gas to generate ozone for water disinfection.

#### SUPPLY & STORAGE

In high pressure cylinders.

### HANDLING & SAFETY

#### HAZARDS

Oxygen vigorously supports combustion of many materials which will not normally burn in air.

#### MATERIALS COMPATIBILITY

Copper, brass and stainless steel are the most commonly used metals. Most lubricants are NOT compatible. N.B. Oil and grease may result in vigorous ignition.

#### PRECAUTIONS IN USE

No smoking, naked lights or hot work in vicinity. Do not use oil and grease, use only approved degreased equipment. Clothing which becomes impregnated with even small quantities of oxygen must be vigorously ventilated in a remote area.

#### PERSONAL PROTECTION

Use appropriate clothing and PPE as per risk assessment.

#### FIRST AID

If victim is conscious:

- Move to uncontaminated area to breathe fresh air.
- Keep warm and quiet.
- Call doctor and advise that patient is experiencing (has experienced) hyperoxia.

If victim is unconscious:

- Move to uncontaminated area and give assisted respiration.
- When breathing is restored, treatment as above. Continued treatment should be symptomatic and supportive.

N.B. Prompt medical attention is mandatory in all cases of over exposure to oxygen. Rescue personnel should be aware of extreme fire hazards associated with oxygen rich atmospheres.

#### ADDITIONAL INFORMATION

The information, recommendations and data contained in this publication are intended to give basic guidance to users for their safe handling and use. For Further information please refer Material Safety Data Sheets (MSDS) It is essential for the safe use of gases that personnel are properly trained and are fully aware of the possible hazards.