## TECHNICAL SPECIFICATION

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- Oxygen > 99.5%
- Moisture < 10 ppm

### PHYSICAL DATA
- Chemical Symbol O₂
- 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/m³
- Density of Liquid (B.Pt.): 1141 kg/m³
- Specific Volume (@101.3 kPa & 15°C): 0.738 m³/kg

### PROPERTIES
- Oxygen gas is odorless and tasteless and constitutes approximately 21% of the 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, oxidation 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 to 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.