

OXYGEN

O₂

CAS Nr. [7782-44-7]

UN1072 (gas) UN1973(liquid refrigerated)

1	Molecular Weight	Molecular weight : 31.9988 g/mol
2	Solid phase	Melting point : -219 °C Latent heat of fusion (1,013 bar, at triple point) : 13.9 kJ/kg
3	Liquid phase	Liquid density (1.013 bar at boiling point) : 1141 kg/m ³ Liquid/gas equivalent (1.013 bar and 15 °C (59 °F)) : 854 vol/vol Boiling point (1.013 bar) : -183 °C Latent heat of vaporization (1.013 bar at boiling point) : 212.98 kJ/kg
4	Critical point:	Critical temperature : -118.6 °C Critical pressure : 50.43 bar Critical density : 436.1 kg/m ³
5	Triple point	Triple point temperature : -218.8 °C Triple point pressure : 0.00152 bar
6	Gaseous phase	Gas density (1.013 bar at boiling point) : 4.475 kg/m ³ Gas density (1.013 bar and 15 °C (59 °F)) : 1.354 kg/m ³ Compressibility Factor (Z) (1.013 bar and 15 °C (59 °F)) : 0.9994 Specific gravity (air = 1) (1.013 bar and 21 °C (70 °F)) : 1.105 Specific volume (1.013 bar and 21 °C (70 °F)) : 0.755 m ³ /kg Heat capacity at constant pressure (Cp) (1 bar and 25 °C (77 °F)): 0.029 kJ/(mol.K) Heat capacity at constant volume (Cv) (1 bar and 25 °C (77 °F)): 0.021 kJ/(mol.K) Ratio of specific heats (Gamma:Cp/Cv) (1 bar and 25 °C (77 °F)): 1.393365 Viscosity (1.013 bar and 0 °C (32 °F)) : 0.0001909 Poise Thermal conductivity (1.013 bar and 0 °C (32 °F)) : 24.24 mW/(m.K)
7	Miscellaneous	Solubility in water (1.013 bar and 0 °C (32 °F)) : 0.0489 vol/vol Concentration in air : 20.94 vol %

Use: Oxygen is used to improve the yield of a large number of petrochemical processes. Oxygen can be used pure in chemical oxidation reactions such as the production of ethylene oxide (EO), propylene oxide (PO), ethylene dichloride (EDC), vinyl acetate monomer (VAM), titanium dioxide (TiO₂), ferric sulfate and also for the debottlenecking of air-based processes such as those in the production of acrylonitrile and purified terephthalic acid (PTA). O₂ is also used in the production of synthesis gas (H₂/CO). With acetylen or LPG's, oxygen allows to boost the flame properties in flame torches and burners (flame temperature, specific flame output power). The second way in which oxygen is used is to provide an highly effective jet for oxy-cutting carbon steels (non- and low-alloyed).

Transportation: Cylinders