

## CARBON DIOXIDE

CO<sub>2</sub>

CAS Number : [124-38-9]

UN1013 (gas); UN2187 (liquid refrigerated); UN1845 (solid)

Batch: 423

1	Molecular Weight	Molecular weight : 44.01 g/mol
2	Solid phase	Latent heat of fusion (1,013 bar, at triple point) : 196.104 kJ/kg Solid density : 1562 kg/m <sup>3</sup>
3	Liquid phase	Liquid density (at -20 °C (or -4 °F) and 19.7 bar) : 1032 kg/m <sup>3</sup> Liquid/gas equivalent (1.013 bar and 15 °C (per kg of solid))845 vol/vol Boiling point (Sublimation) : -78.5 °C Latent heat of vaporization (1.013 bar at boiling point) : 571.08 kJ/kg Vapor pressure (at 20 °C or 68 °F) : 58.5 bar
4	Density & temperature calculation of the liquid phase	Given the pressure (in bar), this module calculates the temperature and the density of the liquid phase on the liquid-gas equilibrium curve Critical temperature : 31 °C Critical pressure : 73.825 bar Critical density : 464 kg/m <sup>3</sup>
5	Triple point	Triple point temperature : -56.6 °C Triple point pressure : 5.185 bar
6	Gaseous phase	Gas density (1.013 bar at sublimation point) : 2.814 kg/m <sup>3</sup> Gas density (1.013 bar and 15 °C (59 °F)) : 1.87 kg/m <sup>3</sup> Compressibility Factor (Z) (1.013 bar and 15 °C (59 °F)) : 0.9942 Specific gravity (air = 1) (1.013 bar and 21 °C (70 °F)) : 1.521 Specific volume (1.013 bar and 21 °C (70 °F)) : 0.547 m <sup>3</sup> /kg Heat capacity at constant pressure (Cp) (1.013 bar and 25 °C (77 °F)): 0.037 kJ/(mol.K) Heat capacity at constant volume (Cv) (1.013 bar and 25 °C (77 °F)): 0.028 kJ/(mol.K) Thermal conductivity (1.013 bar and 0 °C (32 °F)) : 14.65 mW/(m.K) Ratio of specific heats (Gamma:Cp/Cv) (1.013 bar and 25 °C (77 °F)) : 1.293759 Viscosity (1.013 bar and 0 °C (32 °F)) : 0.0001372 Poise
7	Miscellaneous	Solubility in water (1.013 bar and 0 °C (32 °F)) : 1.7163 vol/vol Concentration in air : 0.03 vol %

**Use:** Carbon dioxide (CO<sub>2</sub>), is a part of the life cycle in the nature. The gas is exhaled by humans and animals, and used by plants, that in return release oxygen. Carbon dioxide is produced from by-products from processes such as combustion, fermentation or oxidation of a carbon compound. The "raw gas" must be purified in several stages to the quality required.

**Package:** steel cylinders