

Pure Gas: Carbon Monoxide

DESCRIPTION

Carbon Monoxide is a colorless, odorless, flammable toxic gas. It is a chemical asphyxiant and acts toxically by combining with the hemoglobin of the red blood cells to form the stable compound carbon monoxide-hemoglobin. If inhaled, concentrations of 0.4 percent in air can prove fatal in less than one (1) hour, while inhalation of high concentrations can cause sudden collapse with little or no warning. Carbon Monoxide is stable with respect to decomposition. Carbon Monoxide is used in metallurgy, manufacturing acids, chemical industry, lasers and laboratory R & D. Spectra Gases Material Safety Data Sheets (MSDS) are available for Carbon Monoxide and should be used as guidelines in regard to first aid, methods of storage, handling and general use of Carbon Monoxide.

PURITY SPECIFICATIONS (MAXIMUM IMPURITY LEVELS)		
Contaminant	Spectra Grade 99.995%	Research Grade 99.99%
Carbon Dioxide (CO ₂)	2.0 ppm	50.0 ppm
Hydrogen (H ₂)	0.5 ppm	1.0 ppm
Nitrogen (N ₂)	10.0 ppm	15.0 ppm
Oxygen (O ₂)	3.0 ppm	5.0 ppm
Total Hydrocarbons (THC)	0.5 ppm	1.0 ppm
Water (H ₂ O)	2.0 ppm	7.0 ppm

* Higher purities are available upon request.

CYLINDER INFORMATION					
Purity	Cylinder Size*	Valve Outlet*	Volume Liters	Gross Weight Lbs/Kg	Pressure Psig/Bar
Spectra Grade	2A	350	4000	65 / 29	2000 / 139
	4A	350	815	20 / 9	2000 / 139
Research Grade	2	350	5000	127 / 58	1650 / 115
	3	350	1800	52 / 24	1650 / 115
	4	350	900	24 / 11	1650 / 115
	LB	170	50	6 / 3	1500 / 105

* Additional cylinder sizes and/or valve outlets are available upon request.

(Continued)



PHYSICAL CONSTANTS

Chemical name	CO	
Molecular weight	28.01	
Density of the gas at 70°F (21,1°C), 1 atm	0.0725 lb/ft ³ , 1.161 kg/m ³	
Specific gravity of the gas at 70°F (21,1°C), 1 atm	0.9676	
Specific volume of the gas at 70°F (21,1°C), 1 atm	13.8 ft ³ /lb, 0.862 m ³ /kg	
Density of liquid at -312.7°F (-191.5°C)	49.37 lb/ft ³ , 790.8 kg/m ³	
Boiling point at 1 atm	-312.7°F, -191.5°C	
Melting point at 1 atm	-340.6°F, -207.0°C	
Critical temperature at 1 atm	-220.4°F, -140.2°C	
Critical pressure	507.5 psig, 35.99 bar	
Critical density	18.79 lb/ft ³ , 301 kg/m ³	
Latent heat of vaporization at normal boiling point	92.79 Btu/lb, 215.8 kJ/kg	
Latent heat of fusion at triple point	12.85 Btu/lb, 29.89 kJ/kg	
Specific heat of the gas at 70°F (21,1°C), 1 atm	Cp	0.2478 Btu/(lb) (°F) 1.037 kJ/(kg) (°C)
	Cv	0.1766 Btu/(lb) (°F) 0.7394 kJ/(kg) (°C)

SHIPPING DATA

Synonyms	CO
CAS Register Number	630-08-0
DOT Classification	Flammable gas
DOT Label	Flammable gas, Poison gas
Transport Canada Classification	2.3, 2.1
Substance Identification (SI)	1016
UN Number	UN 1016
Hazards	Fire and Inhalation
Toxicity (TLV)	50 ppm
Flammability Range (in air)	12.5% - 74.2%
Odor	None