

Physical Properties of Carbon Dioxide

Property	US Units	SI Units
Molecular Weight	44.01	44.01
Vapor Pressure of Saturated Liquid		
@ 70°F (21°C) [Cylinder]	853 psia	5,875 kPa abs
@ 32°F (0°C)	505 psia	3,485 kPa abs
@ 2°F (-17°C) [refrigerated liquid]	316 psia	2,180 kPa abs
@ -20°F (-29°C)	215 psia	1,482 kPa abs
@ -69.9°F(-56.6°C) [triple point]	75 psia	518 kPa abs
@ -109.3°F (-78.5°C) [dry ice]	14.7 psia	101 kPa abs
Density (Gas)		
@ 70°F (21°C) and 14.7 psia	0.114 lb/ft ³	1.833 kg/m ³
@ 0°C (32°F) and 1 atm (101 kPa abs)	0.123 lb/ft ³	1.977 kg/m ³
Density (Saturated Liquid)		
@ 70°F (21°C) [Cylinder]	47.6 lb/ft ³	762 kg/m ³
@ 32°F (0°C)	58.0 lb/ft ³	929 kg/m ³
@ 2°F (-17°C) [refrigerated liquid]	63.3 lb/ft ³	1,014 kg/m ³
@ -20°F (-29°C)	66.8 lb/ft ³	1,070 kg/m ³
@ -69.9°F(-56.6°C) [triple point]	73.5 lb/ft ³	1,177 kg/m ³
Density (Solid Dry Ice)		
@ 14.7 psia and -109.3°F (101 kPa abs and -78.5°C)	97.5 lb/ft ³	1,562 kg/m ³
Sublimation Temperature (at 1 atm)	-109.3°F	-78.5°C
Critical Temperature	87.9°F	31.1°C
Critical Pressure	1,071 psia	7,382 kPa abs
Critical Density	29.2 lb/ft ³	468 kg/m ³
Triple Point	-69.9°F / 75.1 psia	-56.6°C / 518 kPa abs
Latent Heat of Vaporization		
@ 32°F (0°C)	100.6 BTU/lb	234.5 kJ/kg
@ 2°F (-17°C) [refrigerated liquid]	119.0 BTU/lb	276.8 kJ/kg
@ -20°F (-29°C)	129.7 BTU/lb	301.7 kJ/kg
Latent Heat of Fusion		
@ -69.9°F (-56.6°C) [Triple Point]	85.6 BTU/lb	571.3.0 kJ/kg
Latent Heat of Sublimation		
@ 109.3°F (-78.5°C) [Dry Ice]	245.5 BTU/lb	199.0 kJ/kg
Specific Heat of Gas		
C _p at 77°F (25°C) and 1 atm	0.203 BTU/lb°F	0.850 kJ/kg°C
C _v at 77°F (25°C) ant 1 atm	0.157 BTU/lb°F	0.657 kJ/kg°C
Ratio of Specific Heats of Gas		
@ 59°F (15°C)	1.304	1.304
Specific Heat of Liquid		
@ 2°F (-17°C) [refrigerated liquid]	0.489 BTU/lb°F	2.048 kJ/kg°C
Solubility of gas in water, vol/vol		
@ 32°F (0°C) and 1 atm	1.7	1.7
@ 60°F (16°C) and 1 atm	1.0	1.0
@ 32°F (0°C) and 60 psig (414 kPa g)	8.6	8.6
Viscosity (Saturated Liquid)		
@ 2F (-17C) [refrigerated liquid]	0.287 lb/ft h	0.119 x 10 ⁻³ Pa s