CO$_2$Tab™ Quick Reference

Function	Calculates at Specified	Calling Sequence Example
Saturated Vapor, Liquid, and Two-Phase Functions		
CDPSAT	pressure *(P)*	CDPSAT(pressure, quality, code, units)
CDTSAT	temperature *(T)*	CDTSAT(temperature, quality, code, *units*)
Superheated or Subcooled Functions		
CDTP	temperature and pressure *(T-P)*	CDTP(temperature, pressure, code, *units*)
CDTV	temperature and volume *(T-V)*	CDTV(temperature, volume, code, *units*)
CDTH	temperature and enthalpy *(T-H)*	CDTH(temperature, enthalpy, code, *units*)
CDTS	temperature and entropy *(T-S)*	CDTS(temperature, entropy, code, *units*)
CDTU	temperature and internal energy *(T-U)*	CDTU(temperature, internal, code, *units*)
CDPV	pressure and volume *(P-V)*	CDPV(pressure, volume, code, *units*)
CDPH	pressure and enthalpy *(P-H)*	CDPH(pressure, enthalpy, code, *units*)
CDPS	pressure and entropy *(P-S)*	CDPS(pressure, entropy, code, *units*)
CDPU	pressure and internal energy *(P-U)*	CDPU(pressure, internal, code, *units*)
Melting and Sublimation Functions		
CDPMELT	pressure at specified temperature (T)	CDPMELT(temperature, *units*)
CDTMELT	temperature at specified pressure (P)	CDTMELT(pressure, *units*)
CDPSUBL	pressure at specified temperature (T)	CDPSUBL(temperature, *units*)
CDTSUBL	temperature at specified pressure (P)	CDTSUBL(pressure, *units*)
Solubility in Water Functions		
CDSOLU	temperature and total pressure	CDSOLU(temperature, pressure, code, *units*)
CDSOLUPP	temperature and CO$_2$ partial pressure	CDSOLUPP(temperature, pressure, code, *units*)
Constant Properties Functions		
CDWM	Molecular weight	CDMW(*units*)
CDTC	Critical temperature	CDTC(*units*)
CDPC	Critical pressure	CDPC(*units*)
CDVC	Critical specific volume	CDVC(*units*)
CDRC	Critical specific density	CDRC(*units*)
CDZC	Critical compressibility factor	CDZC(*units*)
CDTPT	Triple point temperature	CDTPT(*units*)
CDTPP	Triple point pressure	CDTPP(*units*)
CDTMIN	Minimum temperature range	CDTMIN(*units*)
CDTMAX	Maximum temperature range	CDTMAX(*units*)
CDPMIN	Minimum pressure range	CDPMIN(*units*)
CDPMAX	Maximum pressure range	CDPMAX(*units*)

Quality (vapor mass fraction)	
0	Saturated Liquid
1	Saturated Vapor
0 < Q < 1	Two-phase
-1[*]	Indeterminate[*]
-2[*]	Superheated vapor[*]
-3[*]	Subcooled liquid[*]

Units	
0 or none	Metric/SI
1	English

[*]Cannot be specified as a function argument. Only returned as a calculated value.

	Code	Carbon Dioxide Property	Metric/SI Units	English Units
0	T	Temperature, T	°C	°F
1	P	Pressure, P	bar	psia
2	V	Volume, V	m³/kg	ft³/lb
3	D	Density, ρ	kg/m³	lb/ft³
4	Z	Compressibility factor, Z	dimensionless	dimensionless
5	A	Helmoltz free energy, A	kJ/kg	Btu/lb
6	S	Entropy, S	kJ/(kg·°C)	Btu/(lb·°F)
7	U	Internal energy, U	kJ/kg	Btu/lb
8	H	Enthalpy, H	kJ/kg	Btu/lb
9	G	Gibbs free energy, G	kJ/kg	Btu/lb
10	CV	Heat capacity at constant volume, C_v	kJ/(kg·°C)	Btu/(lb·°F)
11	CP	Heat capacity at constant pressure, C_p	kJ/(kg·°C)	Btu/(lb·°F)
12	W	Speed of sound, v	m/s	ft/s
13	ALPHA	Coefficient of thermal expansion, $\alpha = \rho(\partial V/\partial T)_P$	1/°C	1/°F
14	KAPPA	Isothermal compressibility, $\kappa = -\rho(\partial V/\partial P)_T$	1/bar	1/psia
15	DPDT	dpdt, $(\partial P/\partial T)_V$	bar/°C	psia/°F
16	DVDT	dvdt, $(\partial V/\partial T)_P$	m³/(kg·°C)	ft³/(lb·°F)
17	DVDP	dvdp, $(\partial V/\partial P)_T$	m³/(kg·bar)	ft³/(lb·psi)
18	MU	Viscosity (dynamic), μ	µPa·s	lb/(ft·hr)
19	KT	Thermal conductivity, K	W/(m·°C)	Btu/(hr·ft·°F)
20	ST	Surface tension, σ	N/m	N/m
21	PR	Prandtl number, N_{Pr}	dimensionless	dimensionless
22	DC	Static dielectric constant	dimensionless	dimensionless
23	IJT	Isothermal Joule-Thomson coefficient	kJ/(kg·bar)	Btu/(lb·psia)
24	JT	Joule-Thomson coefficient	°C/bar	°F/psia
25	Q	Quality (vapor mass fraction)	dimensionless	dimensionless
	Code	Solubility in Water Property	Metric/SI Units	English Units
0	XCO2	Liquid mole fraction of CO_2 (molar solubility)	dimensionless	dimensionless
1	YCO2	Vapor mole fraction of CO_2	dimensionless	dimensionless
2	XWCO2	Liquid mass fraction of CO_2 (mass solubility)	dimensionless	dimensionless
3	YWCO2	Vapor mass fraction of CO_2	dimensionless	dimensionless