

Carbon monoxide

Other names:	CARBON OXIDE
	CARBONIC OXIDE
	CO
	Carbon monooxide
	Carbon oxide (CO)
	Carbone (oxyde de)
	Carbonio (ossido di)
	Exhaust gas
	Flue gas
	Kohlenmonoxid
	Kohlenoxyd
	Koolmonoxyde
	NA 9202
	Oxyde de carbone
	UN 1016
	Wegla tlenek
Inchi:	InChI=1S/CO/c1-2
InchiKey:	UGFAIRIUMAVXCW-UHFFFAOYSA-N
Formula:	CO
SMILES:	[C]=O
Mol. weight [g/mol]:	28.01
CAS:	630-08-0

Physical Properties

Property code	Value	Unit	Source
af	0.0660		KDB
affp	426.30	kJ/mol	NIST Webbook
affp	594.00	kJ/mol	NIST Webbook
basg	402.20	kJ/mol	NIST Webbook
basg	562.80	kJ/mol	NIST Webbook
dm	0.10	debye	KDB
ea	1.33	eV	NIST Webbook
gf	-137.40	kJ/mol	KDB
gyrad	0.5580		KDB
hf	-110.60	kJ/mol	KDB
hf	-110.53 ± 0.17	kJ/mol	NIST Webbook
hfpi	1241.00	kJ/mol	NIST Webbook

hfpiz	1238.00	kJ/mol	NIST Webbook
ie	14.00	eV	NIST Webbook
ie	14.00	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
ie	14.07 ± 0.05	eV	NIST Webbook
ie	14.01 ± 0.00	eV	NIST Webbook
ie	14.01 ± 0.00	eV	NIST Webbook
ie	14.10	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
ie	13.98	eV	NIST Webbook
ie	14.00	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
ie	14.01 ± 0.00	eV	NIST Webbook
ie	14.01	eV	NIST Webbook
log10ws	-4.06		Crippen Method
logp	-0.397		Crippen Method
mcvol	22.220	ml/mol	McGowan Method
nfpaf	%!d(float64=4)		KDB
nfpah	%!d(float64=2)		KDB
pc	3499.00	kPa	KDB
pc	3514.96 ± 30.39	kPa	NIST Webbook
pc	3498.75 ± 30.39	kPa	NIST Webbook
pc	3498.75 ± 30.39	kPa	NIST Webbook
pc	3521.04 ± 30.39	kPa	NIST Webbook
pt	15.42	kPa	KDB
rhoc	310.91 ± 1.12	kg/m3	NIST Webbook
sgb	197.66 ± 0.00	J/mol×K	NIST Webbook
tb	81.63 ± 0.05	K	NIST Webbook
tb	81.60	K	KDB
tb	81.61 ± 0.07	K	NIST Webbook
tc	134.45 ± 0.40	K	NIST Webbook
tc	132.91	K	KDB
tf	68.00	K	KDB
tt	68.15	K	KDB
tt	68.09 ± 0.07	K	NIST Webbook
tt	67.95 ± 0.06	K	NIST Webbook
tt	68.12 ± 0.05	K	NIST Webbook
vc	0.093	m3/kmol	KDB
zc	0.2944640		KDB
zra	0.29		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
hsubt	7.60	kJ/mol	57.50	NIST Webbook
hsubt	8.10	kJ/mol	59.50	NIST Webbook
hsubt	7.90	kJ/mol	62.50	NIST Webbook
hvapt	6.00	kJ/mol	88.00	NIST Webbook
hvapt	6.00	kJ/mol	76.00	NIST Webbook
hvapt	6.04	kJ/mol	81.60	KDB
hvapt	6.00	kJ/mol	81.00	NIST Webbook
pvap	830.00	kPa	105.89	Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air
pvap	2682.00	kPa	127.32	Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air
rhoI	803.00	kg/m3	81.00	KDB
srf	0.01	N/m	85.20	KDB

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.34775e+01
Coeff. B	-6.79787e+02
Coeff. C	-4.90700e+00
Temperature range (K), min.	56.45
Temperature range (K), max.	132.86

Datasets

Viscosity, Pa*s

Mass density, kg/m3 - Gas	Temperature, K - Gas	Viscosity, Pa*s - Gas
0.5200000	292.39	0.0000175
0.5200000	296.81	0.0000177
0.5200000	323.95	0.0000189
0.5200000	350.09	0.0000201
0.5200000	377.81	0.0000212
0.5200000	297.19	0.0000177
0.5200000	405.55	0.0000224
0.5200000	433.45	0.0000234
0.5200000	298.58	0.0000178
0.5200000	461.45	0.0000245
0.5200000	489.81	0.0000256
0.5200000	298.54	0.0000178
0.5200000	518.44	0.0000266
0.5200000	542.05	0.0000274
0.5200000	299.09	0.0000178
0.5200000	299.27	0.0000178
0.5200000	593.37	0.0000292
0.5200000	622.50	0.0000301
0.5200000	296.74	0.0000177
0.5200000	651.68	0.0000311
0.5200000	681.07	0.0000320
0.5200000	288.72	0.0000173
0.7800000	296.53	0.0000177
0.7800000	323.27	0.0000189
0.7800000	349.98	0.0000201
0.7800000	377.57	0.0000212
0.7800000	405.30	0.0000224
0.7800000	433.29	0.0000235
0.7800000	296.67	0.0000177
0.7800000	461.39	0.0000245
0.7800000	489.68	0.0000256
0.7800000	518.13	0.0000266
0.7800000	542.09	0.0000274
0.7800000	564.73	0.0000282
0.7800000	593.52	0.0000292

0.7800000	622.67	0.0000302
0.7800000	651.51	0.0000311
0.7800000	680.94	0.0000320
0.7800000	288.91	0.0000173

Reference

<https://www.doi.org/10.1007/s10765-012-1185-1>

Kinematic viscosity, m²/s

Temperature, K - Gas	Pressure, kPa - Gas	Kinematic viscosity, m ² /s - Gas
225.00	250.04	0.0000037
225.00	371.90	0.0000025
225.00	499.99	0.0000019
225.00	560.56	0.0000017
225.00	743.07	0.0000013
225.00	750.00	0.0000012
225.00	934.61	0.0000010
225.00	1000.00	0.0000009
225.00	1141.55	0.0000008
225.00	1250.00	0.0000007
225.00	1345.57	0.0000007
225.00	1500.00	0.0000006
225.00	1581.46	0.0000006
225.00	1750.00	0.0000005
225.00	1787.07	0.0000005
225.00	2000.00	0.0000005
225.00	2016.09	0.0000005
225.00	2263.97	0.0000004
225.00	2454.70	0.0000004
250.00	221.65	0.0000054
250.00	401.55	0.0000029
250.00	587.83	0.0000020
250.00	791.25	0.0000014
250.00	982.55	0.0000012
250.00	1169.11	0.0000010
250.00	1392.31	0.0000008
250.00	1587.81	0.0000007
250.00	1808.18	0.0000006
250.00	2050.14	0.0000006
250.00	2241.48	0.0000005
275.00	250.64	0.0000050

275.00	286.53	0.0000044
275.00	465.90	0.0000028
275.00	500.41	0.0000027
275.00	652.16	0.0000021
275.00	750.00	0.0000018
275.00	832.04	0.0000016
275.00	1000.00	0.0000014
275.00	1045.38	0.0000013
275.00	1250.00	0.0000011
275.00	1252.24	0.0000011
275.00	1443.14	0.0000009
275.00	1500.00	0.0000009
275.00	1675.00	0.0000008
275.00	1750.00	0.0000008
275.00	1882.65	0.0000007
275.00	2000.00	0.0000007
275.00	2150.85	0.0000006
275.00	2364.73	0.0000006
300.00	252.56	0.0000067
300.00	501.19	0.0000032
300.00	709.53	0.0000023
300.00	1000.01	0.0000016
300.00	1178.09	0.0000014
300.00	1250.01	0.0000013
300.00	1373.95	0.0000012
300.00	1481.47	0.0000011
300.00	1500.00	0.0000011
300.00	1602.13	0.0000010
300.00	1730.28	0.0000010
300.00	1750.00	0.0000009
300.00	1868.03	0.0000009
300.00	2000.00	0.0000008
300.00	2005.34	0.0000008
325.00	303.08	0.0000059
325.00	515.56	0.0000035
325.00	732.01	0.0000025
325.00	943.23	0.0000019
325.00	1169.67	0.0000016
325.00	1401.15	0.0000013
325.00	1633.88	0.0000011
325.00	1908.67	0.0000010
325.00	2129.59	0.0000009
325.00	2413.09	0.0000008
350.00	342.40	0.0000060

350.00	544.10	0.0000038
350.00	775.52	0.0000027
350.00	1007.12	0.0000021
350.00	1245.13	0.0000017
350.00	1461.54	0.0000014
350.00	1735.08	0.0000012
350.00	1995.63	0.0000011
350.00	2208.19	0.0000010
350.00	2464.21	0.0000009
375.00	260.28	0.0000085
375.00	460.71	0.0000050
375.00	672.43	0.0000034
375.00	885.97	0.0000026
375.00	1102.86	0.0000021
375.00	1302.30	0.0000018
375.00	1537.48	0.0000015
375.00	1815.58	0.0000013
375.00	2026.16	0.0000012
375.00	2250.59	0.0000010
375.00	2518.19	0.0000009

Reference

<https://www.doi.org/10.1016/j.jct.2007.07.002>

Sources

Vapor-liquid equilibrium data for the binary systems in the process of low-pressure solvent carbonate: thermodynamics of solvation of Measuring Diffusion and Solubility of Slightly Soluble Gases in Liquids: Phase Equilibrium of Liquids Binary Mixtures Containing NO and Components Present in Ambient and CO₂-Expanded Hydroformylation Reaction Mixtures containing for the carbon dioxide and carbon monoxide: CO₂-CO systems at temperatures hydrogen, methane and methyl alcohols 1998-2009 MPa: 0.3-3.9 MPa: Measurements and Modeling for the CO₂-H₂ Binary System :

KDB:

NIST Webbook:

Low-pressure solubilities and thermodynamics of solvation of eight gases in CO₂-methanol and CO₂-dimethyl carbonate: The Yaws Handbook of Vapor Pressure: Towards Reference Viscosities of Carbon Monoxide and Nitrogen at Low Density: Equilibrium measurements between liquid carbon dioxide and various acid methyl esters:

<https://www.doi.org/10.1016/j.fluid.2009.12.011>

<https://www.doi.org/10.1016/j.jct.2006.11.012>

<https://www.doi.org/10.1021/acs.jced.5b00990>

<https://www.doi.org/10.1021/acs.jced.7b00782>

<https://www.doi.org/10.1021/je900148e>

<https://www.doi.org/10.1016/j.fluid.2018.05.006>

<https://www.doi.org/10.1021/acs.jced.9b00676>

<https://www.doi.org/10.1021/je300599p>

https://www.chemeo.com/doc/models/crippen_log10ws

<https://www.thermo.com/research/kdb/hcprop/showprop.php?cmpid=1942>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C630080&Units=SI>

<https://www.doi.org/10.1016/j.fluid.2005.12.003>

<https://www.doi.org/10.1016/j.fluid.2004.07.015>

<https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure>

<https://www.doi.org/10.1007/s10765-012-1185-1>

<https://www.doi.org/10.1021/acs.jced.6b00360>

log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
nfpaf:	NFPA Fire Rating
nfpah:	NFPA Health Rating
pc:	Critical Pressure
pt:	Triple Point Pressure
pvap:	Vapor pressure
rhoc:	Critical density
rho:	Liquid Density
sgb:	Molar entropy at standard conditions (1 bar)
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility
zra:	Rackett Parameter

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