(S)-(+)-1,2-Propanediol

Other names:	(+)-(S)-1,2-propanediol (+)-1,2-propanediol (S)-1,2-propanediol (S)-Propylene glycol 1,2-(S)-propanediol 1,2-Propanediol, (S)- 1,2-propanediol, (S)-(+)- 3-deoxy-sn-glycerol L(+)-propanediol L-(+)-1,2-propanediol L-(+)-propylene glycol L-1,2-propanediol S(+)-propane-1,2-diol S-(+)-Propylene glycol d-propylene glycol propylene glycol, (S)-(+)-
Inchi:	InChI=1S/C3H8O2/c1-3(5)2-4/h3-5H,2H2,1H3/t3-/m0/s1
InchiKey:	DNIAPMSPPWPWGF-VKHMYHEASA-N
Formula:	C3H8O2
SMILES:	CC(O)CO
Mol. weight [g/mol]:	76.09
CAS:	4254-15-3

Physical Properties

Property code	Value	Unit	Source
gf	-301.70	kJ/mol	Joback Method
hf	-414.99	kJ/mol	Joback Method
hfus	8.18	kJ/mol	Joback Method
hvap	69.20 ± 0.30	kJ/mol	NIST Webbook
log10ws	0.28		Crippen Method
logp	-0.640		Crippen Method
mcvol	64.870	ml/mol	McGowan Method
pc	5791.74	kPa	Joback Method
tb	451.96	K	Joback Method
tc	614.38	K	Joback Method
tf	230.21	K	Joback Method
vc	0.235	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	165.24	J/mol×K	614.38	Joback Method
cpg	140.93	J/mol×K	479.03	Joback Method
cpg	146.19	J/mol×K	506.10	Joback Method
cpg	151.24	J/mol×K	533.17	Joback Method
cpg	156.10	J/mol×K	560.24	Joback Method
cpg	160.76	J/mol×K	587.31	Joback Method
cpg	135.47	J/mol×K	451.96	Joback Method
dvisc	0.0001649	Pa×s	451.96	Joback Method
dvisc	0.0003678	Pa×s	415.00	Joback Method
dvisc	0.9647802	Pa×s	230.21	Joback Method
dvisc	0.0009593	Pa×s	378.04	Joback Method
dvisc	0.0030803	Pa×s	341.08	Joback Method
dvisc	0.0131321	Pa×s	304.13	Joback Method
dvisc	0.0836198	Pa×s	267.17	Joback Method
hfust	8.40	kJ/mol	240.00	NIST Webbook
pvap	6.85e-03	kPa	288.20	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.02	kPa	301.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.02	kPa	303.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.03	kPa	303.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.03	kPa	305.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.04	kPa	306.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.04	kPa	306.40	1,2-Propanediol. Comprehensive experimental and theoretical study

pvap	0.05	kPa	309.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.05	kPa	310.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.04	kPa	310.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.04	kPa	310.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.06	kPa	312.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.06	kPa	312.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.07	kPa	313.20	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.07	kPa	313.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.05	kPa	313.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.07	kPa	315.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.09	kPa	316.20	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.09	kPa	316.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.09	kPa	316.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.10	kPa	318.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.09	kPa	318.40	1,2-Propanediol. Comprehensive experimental and theoretical study

pvap	0.11	kPa	319.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.12	kPa	320.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.10	kPa	320.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.10	kPa	320.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.13	kPa	321.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.14	kPa	322.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.14	kPa	322.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.13	kPa	323.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.16	kPa	323.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.13	kPa	323.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.13	kPa	324.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.17	kPa	325.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.14	kPa	325.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.17	kPa	325.40	1,2-Propanediol. Comprehensive experimental and theoretical study

pvap	0.18	kPa	326.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.15	kPa	326.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.17	kPa	327.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.20	kPa	327.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.22	kPa	328.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.18	kPa	328.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.18	kPa	328.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.22	kPa	328.60	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.24	kPa	329.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.28	kPa	331.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.23	kPa	331.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.03	kPa	301.30	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.30	kPa	335.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.37	kPa	338.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.02	kPa	298.40	1,2-Propanediol. Comprehensive experimental and theoretical study

pvap	0.02	kPa	298.20	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.01	kPa	297.40	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	9.68e-03	kPa	293.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.01	kPa	293.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	4.27e-03	kPa	283.50	1,2-Propanediol. Comprehensive experimental and theoretical study
pvap	0.26	kPa	333.30	1,2-Propanediol. Comprehensive experimental and theoretical study

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	460.20	K	102.00	NIST Webbook

Sources

1,2-Propanediol. Comprehensive experimental and theoretical study: https://www.doi.org/10.1016/j.jct.2009.04.019
Joback Method: https://en.wikipedia.org/wiki/Joback_method
McGowan Method: http://link.springer.com/article/10.1007/BF02311772
NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C4254153&Units=SI
The Yaws Handbook of Vapor Pressure: https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Crippen Method: http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method: https://www.chemeo.com/doc/models/crippen_log10ws

Legend

cpg:	Ideal gas heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
hvap:	Enthalpy of vaporization at standard conditions
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume