

1,3-Propanediamine, N-methyl-

Other names:	(3-Aminopropyl)methylamine 1,3-Propanediamine, N1-methyl- 1-Amino-3-(methylamino)propane 3-Methylaminopropylamine 3-amino-1-(methylamino)propane N-Methyl-1,3-propanediamine N-methyl-1,3-diaminopropane N-methyl-1,3-propylenediamine N-methyltrimethylenediamine NSC 8160
Inchi:	InChI=1S/C4H12N2/c1-6-4-2-3-5/h6H,2-5H2,1H3
InchiKey:	QHJABUZHJRJTCAU-UHFFFAOYSA-N
Formula:	C4H12N2
SMILES:	CNCCCN
Mol. weight [g/mol]:	88.15
CAS:	6291-84-5

Physical Properties

Property code	Value	Unit	Source
chl	-3208.90 ± 1.70	kJ/mol	NIST Webbook
gf	138.64	kJ/mol	Joback Method
hf	-38.63	kJ/mol	Joback Method
hfl	-80.20 ± 1.70	kJ/mol	NIST Webbook
hfus	16.41	kJ/mol	Joback Method
hvap	41.58	kJ/mol	Joback Method
log10ws	-0.12		Crippen Method
logp	-0.445		Crippen Method
mcvol	87.180	ml/mol	McGowan Method
pc	4260.71	kPa	Joback Method
tb	413.20	K	NIST Webbook
tc	600.57	K	Joback Method
tf	270.76	K	Joback Method
vc	0.324	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	219.74	J/mol×K	569.41	Joback Method
cpg	203.25	J/mol×K	507.09	Joback Method
cpg	194.44	J/mol×K	475.94	Joback Method
cpg	185.23	J/mol×K	444.78	Joback Method
cpg	175.61	J/mol×K	413.62	Joback Method
cpg	227.44	J/mol×K	600.57	Joback Method
cpg	211.69	J/mol×K	538.25	Joback Method
cpl	244.30	J/mol×K	308.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	245.40	J/mol×K	328.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	245.10	J/mol×K	323.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	247.70	J/mol×K	343.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine

cpl	244.60	J/mol×K	318.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	244.40	J/mol×K	313.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	246.00	J/mol×K	333.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	243.50	J/mol×K	303.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	248.50	J/mol×K	348.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
cpl	250.20	J/mol×K	353.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine

cpl	246.60	J/mol×K	338.15	Molar heat capacities of diethylenetriamine and 3-(methylamino)propylamine, their aqueous binaries, and aqueous ternaries with piperazine
hvapt	53.10	kJ/mol	298.15	Vapor pressure and enthalpy of vaporization of aliphatic propanediamines
hvapt	45.90	kJ/mol	370.00	NIST Webbook
pvap	101.27	kPa	412.50	Ebulliometric Determination of Vapor
pvap	4.75	kPa	333.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	7.72	kPa	343.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	12.08	kPa	353.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	18.31	kPa	363.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	3.46	kPa	326.81	Ebulliometric Determination of Vapor
pvap	4.47	kPa	331.62	Ebulliometric Determination of Vapor
pvap	5.97	kPa	337.36	Ebulliometric Determination of Vapor
pvap	7.97	kPa	343.91	Ebulliometric Determination of Vapor
pvap	12.48	kPa	353.78	Ebulliometric Determination of Vapor
pvap	20.47	kPa	365.76	Ebulliometric Determination of Vapor
pvap	27.96	kPa	372.77	Ebulliometric Determination of Vapor
pvap	39.97	kPa	383.53	Ebulliometric Determination of Vapor
pvap	64.98	kPa	397.99	Ebulliometric Determination of Vapor

pvap	79.98	kPa	404.70	Ebulliometric Determination of Vapor
pvap	0.09	kPa	273.00	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	0.20	kPa	283.37	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	0.43	kPa	293.47	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	0.86	kPa	303.11	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	1.61	kPa	313.18	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	2.83	kPa	323.26	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	2.83	kPa	323.26	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	4.76	kPa	333.23	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	1.59	kPa	313.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	7.75	kPa	343.26	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	7.74	kPa	343.28	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	7.74	kPa	343.30	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	11.85	kPa	352.54	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	11.85	kPa	352.54	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	12.14	kPa	353.24	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	18.10	kPa	362.82	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	18.11	kPa	362.84	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	26.61	kPa	372.74	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	26.61	kPa	372.76	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	38.34	kPa	382.84	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	38.35	kPa	382.87	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	53.96	kPa	392.92	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	53.96	kPa	392.95	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	73.40	kPa	402.59	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	73.40	kPa	402.59	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	73.41	kPa	402.61	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	129.80	kPa	422.46	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	129.79	kPa	422.46	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	129.84	kPa	422.51	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	169.97	kPa	432.40	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	170.02	kPa	432.40	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	0.09	kPa	273.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	0.20	kPa	283.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	0.43	kPa	293.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	0.85	kPa	303.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
pvap	4.76	kPa	333.25	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO2 absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K

pvap	2.81	kPa	323.15	Phase equilibrium measurements and thermodynamic modeling of aqueous solutions of polyamines CO ₂ absorbents: 3-aminopropylmethylamine, 3-aminopropyldimethylamine and N,N-diethyl 1,3-propanediamine at temperatures from 273 K to 363 K
rhoI	849.10	kg/m ³	303.15	Mutual diffusion coefficients, density, and viscosity of aqueous solutions of new polyamine CO ₂ absorbents
rhoI	787.72	kg/m ³	363.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K
rhoI	797.09	kg/m ³	353.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K
rhoI	806.37	kg/m ³	343.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K

rhoI	815.56	kg/m3	333.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K
rhoI	833.72	kg/m3	313.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K
rhoI	842.69	kg/m3	303.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K
rhoI	851.61	kg/m3	293.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K
rhoI	860.46	kg/m3	283.15	Volumetric Properties of Binary Mixtures of 3-(Methylamino)propylamine with Water, N-Methyldiethanolamine, N,N-Dimethylethanolamine, and N,N-Diethylethanolamine from (283.15 to 363.15) K

Mutual diffusion coefficients, density, and viscosity of aqueous solutions of tertiary amines, single and DEEA, and N-methylpropanediamine for post-combustion CO₂ capture: Density, viscosity, and N₂O solubility of aqueous amino acid salt and amine aqueous solutions:

Ebulliometric Determination of Vapor:

<https://www.doi.org/10.1016/j.fluid.2013.11.028>

<https://www.doi.org/10.1021/acs.jced.6b01038>

<https://www.doi.org/10.1021/je3013167>

<https://www.doi.org/10.1021/je400886w>

<https://www.doi.org/10.1016/j.jct.2019.06.017>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C6291845&Units=SI>

<https://www.doi.org/10.1016/j.jct.2011.09.012>

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

<https://www.doi.org/10.1021/je800290k>

Legend

chl:	Standard liquid enthalpy of combustion
cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfl:	Liquid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
rho:	Liquid Density
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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