1-Piperazineethanamine

Other names:	1-(2-Aminoethyl)piperazine
	1-Aminoethylpiperazine
	1-Piperazineethylamine
	2-Piperazinylethylamine
	2-piperazin-1-ylethylamine
	AEP
	Aminoethylpiperazine
	N-(.beta.-aminoethyl)piperazine)
	N-(2-aminoethyl)piperazine
	N-(Aminoethyl)piperazine
	N-(«beta»-Aminoethyl)piperazine
	NSC 38968
	Piperazine, 1-(2-aminoethyl)-
	UN 2815
	USAF DO-46
	piperazine, N-(2-aminoethyl)-
Inchi:	InChI=1S/C6H15N3/c7-1-4-9-5-2-8-3-6-9/h8H,1-7H2
InchiKey:	IMUDHTPIFIBORV-UHFFFAOYSA-N
Formula:	C6H15N3
SMILES:	NCCN1CCNCC1
Mol. weight [g/mol]:	129.20
CAS:	140-31-8

Physical Properties

Property code	Value	Unit	Source
hvap	68.70 ± 0.30	kJ/mol	NIST Webbook
log10ws	0.58		Crippen Method
logp	-1.150		Crippen Method
mcvol	114.480	ml/mol	McGowan Method
rinpol	1186.00		NIST Webbook
rinpol	1198.00		NIST Webbook
rinpol	1150.00		NIST Webbook
ripol	1813.00		NIST Webbook
ripol	1827.00		NIST Webbook
ripol	1842.00		NIST Webbook
ripol	1806.00		NIST Webbook
ripol	1865.00		NIST Webbook

ripol	1795.00		NIST Webbook
tb	493.20	K	NIST Webbook
tb	483.15 ± 2.00	K	NIST Webbook
tb	495.15	K	NIST Webbook
tf	255.60 ± 0.60	K	NIST Webbook
tf	255.55	K	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpl	284.00	J/mol×K	333.00	NIST Webbook
cpl	289.70	J/mol×K	303.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	290.80	J/mol×K	308.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	293.10	J/mol×K	313.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	294.70	J/mol×K	318.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K

cpl	296.90	J/mol×K	323.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	298.50	J/mol×K	328.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	300.70	J/mol×K	333.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	302.20	J/mol×K	338.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	303.30	J/mol×K	343.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K

cpl	303.60	J/mol×K	348.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
cpl	304.60	J/mol×K	353.20	Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K
hvapt	68.70	kJ/mol	298.15	Vapour pressure and enthalpy of vaporization of aliphatic poly-amines

Sources

Vapour pressure and enthalpy of vaporization of aliphatic poly-amines:	https://www.doi.org/10.1016/j.jct.2009.09.003
Heat capacities of aqueous binary and ternary mixtures (with piperazine) of N-(2-aminoethyl)-piperazine and N,N,N'-trimethylethylenediamine at temperatures (303.2-353.2) K:	https://www.doi.org/10.1016/j.jct.2016.08.006
Physicochemical Properties of Aqueous Solutions of N,N,N'-trimethylethylenediamine:	https://www.doi.org/10.1021/je9007926
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C140318&Units=SI
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws

Legend

cpl:	Liquid phase heat capacity
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
rinpol:	Non-polar retention indices

ripol: Polar retention indices

tb: Normal Boiling Point Temperature

tf: Normal melting (fusion) point