Tromethamine

Other names:

1,3-propanediol, 2-amino-2-(hydroxymethyl)-
2-(Hydroxymethyl)-2-amino-1,3-propanediol
2-Amino-2-(hydroxymethyl)propane-1,3-diol
2-Amino-2-hydroxymethylpropanediol
2-Amino-2-methylol-1,3-propanediol
2-amino-2-(hydroxymethyl)-1,3-propanediol
Addex-Tham
Aminotri(hydroxymethyl)methane
Aminotrimethylolmethane
Aminotris(hydroxymethyl)methane
Apiroserum Tham
Methanamine, 1,1,1-tris(hydroxymethyl)-
Methylamine, 1,1,1-tris(hydroxymethyl)-
NSC 6365
Pehanorm
TAM
THAM
Talatrol
Tham-E
Trigmo base
Triladyl
Trimethylolaminomethane
Tris
Tris (buffering agent)
Tris (hydroxymethyl)aminoethane
Tris amino
Tris base
Tris buffer
Tris(hydroxymethyl)aminomethane
Tris(hydroxymethyl)methylamine
Tris, free base
Tris-steril
Trisamin
Trisamine
Trisaminol
Trispuffer
Trizma
Trizma base
Trometamol
Trometamole

	Tromethamin
	Tromethane
	Tromethanmin
	Tutofusin tris
	tris(hydroxymethyl)methanamine
	trishydroxymethylaminomethane
Inchi:	InChI=1S/C4H11NO3/c5-4(1-6,2-7)3-8/h6-8H,1-3,5H2
InchiKey:	LENZDBCJOHFCAS-UHFFFAOYSA-N
Formula:	C4H11NO3
SMILES:	NC(CO)(CO)CO
Mol. weight [g/mol]:	121.14
CAS:	77-86-1

Physical Properties

Property code	Value	Unit	Source
chs	-2426.41 ± 0.73	kJ/mol	NIST Webbook
chs	-2428.27 ± 0.78	kJ/mol	NIST Webbook
gf	-358.37	kJ/mol	Joback Method
hf	-557.54	kJ/mol	Joback Method
hfs	-717.84 ± 0.82	kJ/mol	NIST Webbook
hfus	34.52	kJ/mol	Thermal analysis of phase change materials in the temperature range 120.150 .C
hfus	33.48	kJ/mol	Heat capacity measurement of organic thermal energy storage materials
hvap	83.88	kJ/mol	Joback Method
log10ws	1.17		Crippen Method
logp	-2.339		Crippen Method
mcvol	94.810	ml/mol	McGowan Method
pc	6400.00	kPa	Joback Method
rinpol	1645.00		NIST Webbook
rinpol	1645.00		NIST Webbook
ss	175.44	J/mol×K	NIST Webbook
tb	636.76	K	Joback Method
tc	809.05	K	Joback Method
tf	440.70 ± 3.00	K	NIST Webbook
tt	443.60 ± 0.10	K	NIST Webbook
vc	0.335	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	261.58	J/mol×K	636.76	Joback Method
cpg	267.65	J/mol×K	665.47	Joback Method
cpg	273.38	J/mol×K	694.19	Joback Method
cpg	278.80	J/mol×K	722.90	Joback Method
cpg	283.92	J/mol×K	751.62	Joback Method
cpg	288.77	J/mol×K	780.33	Joback Method
cpg	293.37	J/mol×K	809.05	Joback Method
cps	171.27	J/mol×K	298.15	NIST Webbook
cps	167.19	J/mol×K	298.15	NIST Webbook
hfust	3.10	kJ/mol	444.60	NIST Webbook
hfust	2.41	kJ/mol	443.60	NIST Webbook

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	492.70	K	1.30	NIST Webbook

Sources

Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Buffers and Ionic Salts: Densities and Solubilities of Aqueous and Electrolyte Solutions of	https://www.doi.org/10.1021/je900260g
Thermophysical property characterization of ternary system (water + 2-amino-2-hydroxymethyl-1,3-propanediol + glycol) systems:	https://www.doi.org/10.1016/j.jct.2012.12.011
Tris(hydroxymethyl)aminomethane and 2-amino-2-hydroxymethyl-1,3-propanediol	https://www.doi.org/10.1016/j.jct.2016.03.013
2-amino-2-hydroxymethyl-1,3-propanediol	https://www.doi.org/10.1016/j.jct.2012.02.022
solubility of carbon dioxide in aqueous solutions of	https://www.doi.org/10.1016/j.fluid.2008.04.003
2-amino-2-hydroxymethyl-1,3-propanediol:	https://www.doi.org/10.1016/j.tca.2010.11.011
Thermal analysis of phase change materials in the temperature range 220.150 °C:	https://www.doi.org/10.1021/je5009685
Solubility of Tris(hydroxymethyl)aminomethane in Methanol + 1-Propanol Mixtures at Various Temperatures:	https://www.doi.org/10.1021/je500620m
Solubility of Tris(hydroxymethyl)aminomethane in Water + 1-Propanol Mixtures at Various Temperatures:	https://www.doi.org/10.1016/j.jct.2010.08.016
Buffer interactions: Solubilities and transfer free energies of TRIS, TAPS, TAPSO, and TABS from water to aqueous ethanol solutions:	https://www.doi.org/10.1016/j.fluid.2009.11.019
A green process for recovery of 1-propanol/2-propanol from their aqueous solutions: Experimental and MD simulation studies:	https://www.doi.org/10.1016/j.jct.2016.10.001

Physical Properties and Thermal Decomposition of Aqueous Solutions of 2-Amino-2-hydroxymethyl-1,3-propanediol (AHPD):	https://www.doi.org/10.1007/s10765-011-1065-0
Physical Properties of Piperazine (PZ) Activated Aqueous Solutions of 2-Amino-2-hydroxymethyl-1,3-propanediol (AHPD):	https://www.doi.org/10.1021/je2008523
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C77861&Units=SI
Physicochemical Properties of Aqueous Solutions of 2-Amino-2-hydroxymethyl-1,3-propanediol:	https://www.doi.org/10.1021/je800460a
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Heat capacity measurement of organic thermal energy storage materials:	https://www.doi.org/10.1016/j.jct.2006.02.005
Solubility Determination of Tris(hydroxymethyl)aminomethane in Water + Methanol Mixtures at Various Temperatures Using a Laser Monitoring Technique:	https://www.doi.org/10.1021/je500368p

Legend

chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas heat capacity
cps:	Solid phase heat capacity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfs:	Solid phase 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
rinpol:	Non-polar retention indices
ss:	Solid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume