Tridodecylamine

Other names:	1-Dodecanamine, N,N-didodecyl-
	Adogen 360
	Alamine 304
	Armeen 3-12
	Tri-n-dodecylamine
	Trilaurylamine
Inchi:	InChI=1S/C36H75N/c1-4-7-10-13-16-19-22-25-28-31-34-37(35-32-29-26-23-20-17-14-11
InchiKey:	SWZDQOUHBYYPJD-UHFFFAOYSA-N
Formula:	C36H75N
SMILES:	CCCCCCCCCCCCN(CCCCCCCCCCCC)CCCCCCCCCCCC
Mol. weight [g/mol]:	521.99
CAS:	102-87-4

Physical Properties

Property code	Value	Unit	Source
gf	363.02	kJ/mol	Joback Method
hf	-718.84	kJ/mol	Joback Method
hfus	92.02	kJ/mol	Joback Method
hvap	97.77	kJ/mol	Joback Method
log10ws	-13.46		Crippen Method
logp	13.051		Crippen Method
mcvol	528.080	ml/mol	McGowan Method
pc	457.35	kPa	Joback Method
tb	1035.52	K	Joback Method
tc	1333.32	K	Joback Method
tf	289.20	K	Solid-liquid equilibrium, excess molar volume, and deviations in the molar refractivity for the binary and ternary mixtures of Alamine 304-1 with 1-octanol, 2-octanol, and 1-decanol
tf	288.85 ± 1.00	K	NIST Webbook
vc	2.070	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	1942.82	J/mol×K	1035.52	Joback Method
cpg	1979.54	J/mol×K	1085.15	Joback Method
cpg	2013.47	J/mol×K	1134.79	Joback Method
cpg	2044.94	J/mol×K	1184.42	Joback Method
cpg	2074.28	J/mol×K	1234.06	Joback Method
cpg	2101.83	J/mol×K	1283.69	Joback Method
cpg	2127.92	J/mol×K	1333.32	Joback Method
hvapt	82.10	kJ/mol	693.00	NIST Webbook
rhol	819.23	kg/m3	298.15	Solid Liquid Equilibria, Excess Molar Volumes, and Deviations in the Molar Refractivity for the Binary Systems of Alamine 304-1 + Decane, Dodecane, or Dodecanol

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.28712e+01
Coeff. B	-5.25100e+03
Coeff. C	-1.41630e+02
Temperature range (K), min.	558.92
Temperature range (K), max.	836.24

Sources

Solid-liquid equilibrium, excess molar volume, and deviations in the molar refractivity for the binary and ternary mixtures of Alamine 304-1 with 1-octanol, 2-octanol, and 1-decanol:	https://www.doi.org/10.1016/j.fluid.2012.03.025
Solid-Liquid Equilibria, Excess Molar Volumes, and Deviations in the Molar Refractivity for the Binary Systems of Alamine 304-1 + Decane, Dodecane, or Dodecanol:	https://www.doi.org/10.1021/je400606c

NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C102874&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Comparison of the Efficiencies of Amine Extractants on Lactic Acid with Different Organic Solvents:	https://www.doi.org/10.1021/je900446d
Solubility of Tridodecylamine in Supercritical Carbon Dioxide:	https://www.doi.org/10.1021/je8001656
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772

Legend

cpg:	Ideal gas heat capacity
gf:	Standard Gibbs free energy of formation
hf:	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
rhol:	Liquid Density
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume