Lysine

Other names:	(S)-2,6-Diaminohexanoic acid
	(S)-Lysine
	(S)-«alpha»,«epsilon»-Diaminocaproic acid
	(S)-Â«alphaÂ»,Â«epsilonÂ»-Diaminocaproic acid
	2,6-DIAMINOHEXANOIC ACID
	AMINUTRIN
	Hexanoic acid, 2,6-diamino-, (S)-
	L-(+)-Lysine
	L-H2N(CH2)4CH(NH2)COOH
	L-LYSINE
	L-Norleucine, 6-amino-
	Lys
	Lysine acid
	Lysine, L-
	h-Lys-oh
	«alpha»,«epsilon»-Diaminocaproic acid
	«alpha»-Lysine
	Â«alphaÂ»,Â«epsilonÂ»-Diaminocaproic acid
	Â«alphaÂ»-Lysine
Inchi:	InChI=1S/C6H14N2O2/c7-4-2-1-3-5(8)6(9)10/h5H,1-4,7-8H2,(H,9,10)/t5-/m1/s1
InchiKey:	KDXKERNSBIXSRK-RXMQYKEDSA-N
Formula:	C6H14N2O2
SMILES:	NCCCCC(N)C(=O)O
Mol. weight [g/mol]:	146.19
CAS:	56-87-1

Physical Properties

Property code	Value	Unit	Source
affp	996.00	kJ/mol	NIST Webbook
basg	951.00	kJ/mol	NIST Webbook
chs	-3683.20 ± 1.50	kJ/mol	NIST Webbook
gf	-135.64	kJ/mol	Joback Method
hf	-369.68	kJ/mol	Joback Method
hfs	-678.70 ± 1.50	kJ/mol	NIST Webbook
hfus	23.85	kJ/mol	Joback Method
hvap	73.27	kJ/mol	Joback Method
ie	9.50	eV	NIST Webbook

ie	8.60	eV	NIST Webbook
log10ws	-0.41		Crippen Method
logp	-0.473		Crippen Method
mcvol	122.800	ml/mol	McGowan Method
pc	4345.39	kPa	Joback Method
tb	627.35	K	Joback Method
tc	821.14	K	Joback Method
tf	419.65	K	Joback Method
vc	0.449	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	327.73	J/mol×K	627.35	Joback Method
cpg	337.15	J/mol×K	659.65	Joback Method
cpg	346.06	J/mol×K	691.95	Joback Method
cpg	354.49	J/mol×K	724.25	Joback Method
cpg	362.45	J/mol×K	756.54	Joback Method
cpg	369.96	J/mol×K	788.84	Joback Method
cpg	377.03	J/mol×K	821.14	Joback Method

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	3.35245e+01
Coeff. B	-1.17085e+04
Coeff. C	-1.33906e+02
Temperature range (K), min.	483.00
Temperature range (K), max.	548.91

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	2.16774e+02
Coeff. B	-2.25228e+04

Coeff. C	-2.78152e+01
Coeff. D	8.13785e-06
Temperature range (K), min.	483.00
Temperature range (K), max.	821.00

Sources

KDB:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1473
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Solubility of the Proteinogenic a-Amino Acids in Water, Ethanol, and Ethanol−Water Mixtures:	https://www.doi.org/10.1021/acs.jced.7b00486
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
Solvation of Basic and Neutral Amino Acids in Aqueous Electrolytic Solutions: Measurements and Modeling:	https://www.doi.org/10.1021/acs.jced.5b00393
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Thermophysical properties of aqueous lysine and its inhibition influence on methane and carbon dioxide hydrate phase boundary condition:	https://www.doi.org/10.1016/j.fluid.2017.09.012
Mutual diffusion coefficients of L-lysine in aqueous solutions:	https://www.doi.org/10.1016/j.jct.2014.02.008
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C56871&Units=SI
KDB Vapor Pressure Data:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1473
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772

Legend

affp:	Proton affinity
basg:	Gas basicity
chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas 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
hvap:	Enthalpy of vaporization at standard conditions
ie:	Ionization energy
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

tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume