Dicyandiamide

Other names:	1-Cyanoguanidine
	2-Cyanoguanidine
	ACR-H 3636
	Araldite HT 986
	Araldite XB 2879B
	Araldite XB 2979B
	Bakelite VE 2560
	Cyanoguanidine
	Dicyandiamin
	Dicyanediamide
	Dicyanodiamide
	Epicure DICY 15
	Epicure DICY 7
	Guanidine, N-cyano-
	Guanidine, cyano-
	Guanidine-1-carbonitrile
	N-cyanoguanidine
	NCN=C(NH2)2
	NSC 2031
	Pyroset DO
	XB 2879B
Inchi:	InChI=1S/C2H4N4/c3-1-6-2(4)5/h(H4,4,5,6)
InchiKey:	QGBSISYHAICWAH-UHFFFAOYSA-N
Formula:	C2H4N4
SMILES:	N#CNC(=N)N
Mol. weight [g/mol]:	84.08
CAS:	461-58-5

Physical Properties

Property code	Value	Unit	Source
chs	-1377.63	kJ/mol	NIST Webbook
chs	-1383.60	kJ/mol	NIST Webbook
chs	-1379.90 ± 2.00	kJ/mol	NIST Webbook
gf	458.58	kJ/mol	Joback Method
hf	365.86	kJ/mol	Joback Method
hfs	21.30 ± 2.00	kJ/mol	NIST Webbook

hfs	24.90	kJ/mol	NIST Webbook
hvap	59.68	kJ/mol	Joback Method
ie	8.99	eV	NIST Webbook
ie	8.40	eV	NIST Webbook
log10ws	-1.55		Crippen Method
logp	-1.049		Crippen Method
mcvol	66.060	ml/mol	McGowan Method
ss	129.29	J/mol×K	NIST Webbook
tb	554.28	K	Joback Method
tf	482.65	K	Measurement, correlation of the solubility and solution thermodynamics of 2-cyanoguanidine in (methanol + water) binary solvent systems from T = (283.15 to 343.15) K
tf	482.65	K	Solid-liquid equilibrium of dicyandiamide in different solvents

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	139.65	J/mol×K	554.28	Joback Method
cpg	36.83	J/mol×K	100.12	Joback Method
cpg	36.83	J/mol×K	100.12	Joback Method
cpg	36.83	J/mol×K	100.12	Joback Method
cpg	36.83	J/mol×K	100.12	Joback Method
cpg	36.83	J/mol×K	100.12	Joback Method
cpg	36.83	J/mol×K	100.12	Joback Method
cps	142.00	J/mol×K	340.00	NIST Webbook
cps	117.74	J/mol×K	294.63	NIST Webbook
hfust	22.96	kJ/mol	487.60	NIST Webbook
hsubt	128.70	kJ/mol	435.00	NIST Webbook

Sources

Measurement, correlation of the solubility and solution thermodynamics of 2-cyanoguanidine in (methanol + water) binary solvent systems from T = (283.15 to 343.15) K:	https://www.doi.org/10.1016/j.jct.2015.05.025
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Equilibrium Solubilities of 2-Cyanoguanidine in Water + (Ethane-1,2-diol or N,N-Dimethylformamide) Mixtures at Different Temperatures: An Experimental and Correlational Study:	https://www.doi.org/10.1021/je400754e
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C461585&Units=SI

Solid-liquid equilibrium of dicyandiamide in different solvents:	https://www.doi.org/10.1016/j.fluid.2013.12.001
Salting-out effect of alkali metal chlorides (lithium, sodium, and potassium) on 2-cyanoguanidine aqueous solution: A solid-liquid equilibrium study:	https://www.doi.org/10.1016/j.fluid.2015.09.005
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Joback Method:	https://en.wikipedia.org/wiki/Joback_method

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
hfust:	Enthalpy of fusion at a given temperature
hsubt:	Enthalpy of sublimation at a given temperature
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
ss:	Solid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tf:	Normal melting (fusion) point