

# Dicyandiamide

<b>Other names:</b>	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(NH <sub>2</sub> ) <sub>2</sub> NSC 2031 Pyroset DO XB 2879B
<b>Inchi:</b>	InChI=1S/C2H4N4/c3-1-6-2(4)5/h(H4,4,5,6)
<b>InchiKey:</b>	QGBSISYHAICWAH-UHFFFAOYSA-N
<b>Formula:</b>	C <sub>2</sub> H <sub>4</sub> N <sub>4</sub>
<b>SMILES:</b>	N#CNC(=N)N
<b>Mol. weight [g/mol]:</b>	84.08
<b>CAS:</b>	461-58-5

## Physical Properties

Property code	Value	Unit	Source
chs	-1383.60	kJ/mol	NIST Webbook
chs	-1379.90 ± 2.00	kJ/mol	NIST Webbook
chs	-1377.63	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	36.83	J/mol·K	100.12	Joback Method
cpg	36.83	J/mol·K	100.12	Joback Method
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
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

### Joback Method:

[https://en.wikipedia.org/wiki/Joback\\_method](https://en.wikipedia.org/wiki/Joback_method)

### Equilibrium Solubilities of 2-Cyanoguanidine in Water + Methanol, 2001 or NIST Webbook

<https://www.doi.org/10.1021/je400754e>

### N,N-Dimethylformamide) Mixtures at Solid-Liquid Equilibrium of Dicyandiamide in Different Solvents: Experimental and Correlational Study:

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C461585&Units=SI>

<https://www.doi.org/10.1016/j.fluid.2013.12.001>

<b>Crippen Method:</b>	<a href="http://pubs.acs.org/doi/abs/10.1021/ci990307l">http://pubs.acs.org/doi/abs/10.1021/ci990307l</a>
<b>Salting-out effect of alkali metal chlorides (lithium, sodium, and potassium) on cyanoguanidine aqueous solution: A solid-liquid equilibrium study</b>	<a href="https://www.doi.org/10.1016/j.fluid.2015.09.005">https://www.doi.org/10.1016/j.fluid.2015.09.005</a>
<b>McGowan Method</b>	<a href="http://link.springer.com/article/10.1007/BF02311772">http://link.springer.com/article/10.1007/BF02311772</a>
<b>Measurement, correlation of the solubility and solution thermodynamics of cyanoguanidine in (methanol + water) binary solvent systems from T = (283.15 to 343.15) K:</b>	<a href="https://www.doi.org/10.1016/j.jct.2015.05.025">https://www.doi.org/10.1016/j.jct.2015.05.025</a>
<b>Crippen Method</b>	<a href="https://www.chemeo.com/doc/models/crippen_log10ws">https://www.chemeo.com/doc/models/crippen_log10ws</a>

## Legend

<b>chs:</b>	Standard solid enthalpy of combustion
<b>cpg:</b>	Ideal gas heat capacity
<b>cps:</b>	Solid phase heat capacity
<b>gf:</b>	Standard Gibbs free energy of formation
<b>hf:</b>	Enthalpy of formation at standard conditions
<b>hfs:</b>	Solid phase enthalpy of formation at standard conditions
<b>hfust:</b>	Enthalpy of fusion at a given temperature
<b>hsubt:</b>	Enthalpy of sublimation at a given temperature
<b>hvap:</b>	Enthalpy of vaporization at standard conditions
<b>ie:</b>	Ionization energy
<b>log10ws:</b>	Log10 of Water solubility in mol/l
<b>logp:</b>	Octanol/Water partition coefficient
<b>mcvol:</b>	McGowan's characteristic volume
<b>ss:</b>	Solid phase molar entropy at standard conditions
<b>tb:</b>	Normal Boiling Point Temperature
<b>tf:</b>	Normal melting (fusion) point

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