2-IMIDAZOLIDINONE, 1,3-DIMETHYL-

Other names:	1,3-Dimethyl-2-imidazolidone
	1,3-Dimethylethyleneurea
	1,3-Dimethylimidazolidin-2-one
	1,3-Dimethylimidazolidinone
	1,3-dimethyl-2-imidazolidinone
	Dimethylethyleneurea
	N,N'-Dimethyl-2-imidazolidinone
	N,N'-dimethylethyleneurea
	Rhonite 1
Inchi:	InChI=1S/C5H10N2O/c1-6-3-4-7(2)5(6)8/h3-4H2,1-2H3
InchiKey:	CYSGHNMQYZDMIA-UHFFFAOYSA-N
Formula:	C5H10N2O
SMILES:	CN1CCN(C)C1=O
Mol. weight [g/mol]:	114.15

Physical Properties

Property code	Value	Unit	Source
affp	918.40	kJ/mol	NIST Webbook
basg	886.00	kJ/mol	NIST Webbook
hf	-165.79	kJ/mol	Cheméo Relay (1.0)
hvap	58.52	kJ/mol	Cheméo Relay (1.0)
ie	8.87	eV	Cheméo Relay (1.0)
log10ws	1.07		Cheméo Relay (1.0)
logp	-0.016		Crippen Method
mcvol	91.980	ml/mol	McGowan Method
pc	4289.78	kPa	Cheméo Relay (1.0, beta)
tb	500.04	K	Cheméo Relay (1.0)
tc	698.88	K	Cheméo Relay (1.0)
tf	314.91	K	Cheméo Relay (1.0)

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
hvapt	48.50	kJ/mol	426.50	NIST Webbook

hvapt	54.30	kJ/mol	426.50	NIST Webbook
rfi	1.47120		298.15	Effect of intramolecular cyclization on the enthalpies of solvation of tetramethylurea in water and alkanols at 298.15K
rfi	1.47130		298.15	D2O H2O solvent isotope effects on the thermodynamic properties of 1,3-dimethyl-2-imidazolidinone hydration between 288.15 and 318.15K
rhol	1042.79	kg/m3	308.15	D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between (278.15 and 318.15) K
rhol	1051.60	kg/m3	298.15	D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between (278.15 and 318.15) K
rhol	1064.86	kg/m3	283.15	Excess molar volumes of binary mixtures of 1,3-dimethylimidazolidin-2-one with an alkan-1-ol at the temperatures 283.15 K, 298.15 K, and 313.15 K
rhol	1038.38	kg/m3	313.15	D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between (278.15 and 318.15) K
rhol	1034.00	kg/m3	318.15	D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between (278.15 and 318.15) K

rhol	1058.00	kg/m3	293.15	Investigation of the Solubilities of Carbon Dioxide in Some Low Volatile Solvents and Their Thermodynamic Properties
rhol	1060.43	kg/m3	288.15	D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between (278.15 and 318.15) K
rhol	1069.30	kg/m3	278.15	D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between (278.15 and 318.15) K
rhol	1038.38	kg/m3	313.15	Excess molar volumes of binary mixtures of 1,3-dimethylimidazolidin-2-one with an alkan-1-ol at the temperatures 283.15 K, 298.15 K, and 313.15 K
rhol	1051.59	kg/m3	298.15	Excess molar volumes of binary mixtures of 1,3-dimethylimidazolidin-2-one with an alkan-1-ol at the temperatures 283.15 K, 298.15 K, and 313.15 K

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	380.20	K	2.30	NIST Webbook
tbrp	382.50 ± 0.50	K	2.40	NIST Webbook

Sources

(Liquid + liquid) equilibria of (heptane, or hexane, or cyclohexane + toluene + 1,3-dimethyl-2-imidazolidinone) ternary systems at T = 298.15 K:	https://www.doi.org/10.1016/j.jct.2009.11.009
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C80739&Units=SI
Excess molar volumes of binary mixtures of 1,3-dimethylimidazolidin-2-one with an alkan-1-ol at the temperatures 283.15 K, 298.15 K, and 313.15 K:	https://www.doi.org/10.1016/j.jct.2006.09.017
Chemeo Relay (1.0):	
Addendum to Effect of intramolecular cyclization on the enthalpies of solvation of tetramethylurea in water and alkanols at 298.15 K. Thermochim. Acta 478 (2008) 72-73:	https://www.doi.org/10.1016/j.tca.2008.09.004
D2O H2O solvent isotope effects on the thermodynamic properties of 1,3-dimethyl-2-imidazolidinone hydration between 288.15 and 318.15K:	https://www.doi.org/10.1016/j.tca.2008.09.005
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Chemeo Relay (1.0, beta):	
D2O H2O solvent isotope effects on the volumetric properties of aqueous 1,3-dimethyl-2-imidazolidinone between 278.15 and 318.15 K:	https://www.doi.org/10.1016/j.jct.2009.06.019
Effect of intramolecular cyclization on the enthalpies of solvation of tetramethylurea in water and alkanols at 298.15K:	https://www.doi.org/10.1016/j.tca.2008.07.001
Enthalpic-related interaction parameters in H/D isotopically distinguishable aqueous solutions of tetramethylurea cyclic derivatives at 298.15 K:	https://www.doi.org/10.1016/j.tca.2011.05.019
Solubility and thermodynamic properties of SO2 in three low volatile urea derivatives:	https://www.doi.org/10.1016/j.jct.2016.05.004
Investigation of the Solubilities of Carbon Dioxide in Some Low Volatile Solvents and Their Thermodynamic Properties:	https://www.doi.org/10.1021/acs.jced.5b00893
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l

Legend

affp:	Proton affinity
basg:	Gas basicity
hf:	Enthalpy of formation at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
ie:	Ionization energy
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
rfi:	Refractive Index
rhol:	Liquid Density
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point