Methylamine

Other names:	AMINOMETHANE
	CARBINAMINE
	CH3NH2
	MMA
	Mercurialin
	Methanamine
	Methylaminen
	Metilamine
	Metyloamina
	Monomethylamine
	UN 1061
Inchi:	InChI=1S/CH5N/c1-2/h2H2,1H3
InchiKey:	BAVYZALUXZFZLV-UHFFFAOYSA-N
Formula:	CH5N
SMILES:	CN
Mol. weight [g/mol]:	31.06
CAS:	74-89-5

Physical Properties

Property code	Value	Unit	Source
af	0.2920		KDB
affp	899.00	kJ/mol	NIST Webbook
aigt	703.15	K	KDB
basg	864.50	kJ/mol	NIST Webbook
chl	-1075.00	kJ/mol	NIST Webbook
chl	-1094.00	kJ/mol	NIST Webbook
chl	-1060.80 ± 0.40	kJ/mol	NIST Webbook
chl	-1060.80 ± 0.40	kJ/mol	NIST Webbook
dm	1.30	debye	KDB
fll	4.30	% in Air	KDB
flu	21.00	% in Air	KDB
gf	32.28	kJ/mol	KDB
hf	-12.20	kJ/mol	NIST Webbook
hf	-23.50	kJ/mol	NIST Webbook
hf	-23.03	kJ/mol	KDB
hfl	-47.30 ± 0.46	kJ/mol	NIST Webbook
hfl	-36.00	kJ/mol	NIST Webbook

hfl	-47.30 ± 0.46	kJ/mol	NIST Webbook
hfus	3.54	kJ/mol	Joback Method
hvap	23.85	kJ/mol	NIST Webbook
ie	9.08	eV	NIST Webbook
ie	9.65	eV	NIST Webbook
ie	9.64	eV	NIST Webbook
ie	9.64	eV	NIST Webbook
ie	8.90 ± 0.10	eV	NIST Webbook
ie	8.90	eV	NIST Webbook
ie	9.45	eV	NIST Webbook
ie	9.58	eV	NIST Webbook
ie	9.58	eV	NIST Webbook
ie	9.00	eV	NIST Webbook
ie	9.65	eV	NIST Webbook
ie	8.80 ± 0.02	eV	NIST Webbook
ie	8.90 ± 0.10	eV	NIST Webbook
log10ws	0.32		Crippen Method
logp	-0.425		Crippen Method
mcvol	34.930	ml/mol	McGowan Method
nfpaf	%!d(float64=4)		KDB
nfpah	%!d(float64=3)		KDB
pc	7614.00 ± 4.00	kPa	NIST Webbook
pc	7457.52 ± 60.79	kPa	NIST Webbook
pc	7614.00	kPa	KDB
pc	7650.00 ± 100.00	kPa	NIST Webbook
rinpol	380.00		NIST Webbook
rinpol	305.00		NIST Webbook
rinpol	328.00		NIST Webbook
sl	150.20	J/mol×K	NIST Webbook
tb	266.65 ± 1.00	K	NIST Webbook
tb	266.65 ± 1.00	K	NIST Webbook
tb	266.65 ± 1.00	K	NIST Webbook
tb	266.65 ± 0.50	K	NIST Webbook
tb	266.70 ± 0.30	K	NIST Webbook
tb	267.05 ± 0.20	K	NIST Webbook
tb	266.83	K	KDB
tb	266.95 ± 0.20	K	NIST Webbook
tb	266.80	K	NIST Webbook
tc	430.70 ± 0.20	K	NIST Webbook
tc	430.85 ± 0.50	K	NIST Webbook
tc	430.70	K	KDB
tc	430.05 ± 0.70	K	NIST Webbook
tf	179.70 ± 0.07	K	NIST Webbook
tf	180.05 ± 0.30	K	NIST Webbook

tf	180.05 ± 0.40	K	NIST Webbook
tf	179.71	K	KDB
tt	179.70 ± 0.07	K	NIST Webbook
vc	0.139 ± 0.001	m3/kmol	NIST Webbook
vc	0.154	m3/kmol	KDB
zc	0.3284960		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	60.08	J/mol×K	385.32	Joback Method
cpg	63.31	J/mol×K	415.48	Joback Method
cpg	66.43	J/mol×K	445.65	Joback Method
cpg	49.72	J/mol×K	294.81	Joback Method
cpg	53.29	J/mol×K	324.98	Joback Method
cpg	56.74	J/mol×K	355.15	Joback Method
cpg	69.45	J/mol×K	475.82	Joback Method
cpl	101.80	J/mol×K	259.28	NIST Webbook
hfust	6.13	kJ/mol	179.70	NIST Webbook
hfust	6.13	kJ/mol	179.70	NIST Webbook
hvapt	27.20	kJ/mol	248.00	NIST Webbook
hvapt	25.81 ± 0.13	kJ/mol	266.84	NIST Webbook
hvapt	27.40	kJ/mol	228.50	NIST Webbook
hvapt	25.98	kJ/mol	266.80	KDB
hvapt	25.81	kJ/mol	266.84	NIST Webbook
hvapt	25.60	kJ/mol	266.80	NIST Webbook
hvapt	24.80	kJ/mol	350.00	NIST Webbook
hvapt	23.50	kJ/mol	401.50	NIST Webbook
hvapt	26.10	kJ/mol	296.00	NIST Webbook
rhol	703.00	kg/m3	260.00	KDB
sfust	34.13	J/mol×K	179.70	NIST Webbook
srf	0.02	N/m	293.20	KDB
svapt	96.73	J/mol×K	266.84	NIST Webbook

Correlations

Information	Value
Property code	pvap

Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.49438e+01
Coeff. B	-2.36156e+03
Coeff. C	-3.80880e+01
Temperature range (K), min.	179.69
Temperature range (K), max.	390.05

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	7.39982e+01
Coeff. B	-5.25016e+03
Coeff. C	-9.02366e+00
Coeff. D	9.96726e-06
Temperature range (K), min.	179.69
Temperature range (K), max.	430.05

Sources

The Yaws Handbook of Vapor Pressure: https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
KDB Vapor Pressure Data: https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1255
Crippen Method: http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method: https://www.chemeo.com/doc/models/crippen_log10ws
Joback Method: https://en.wikipedia.org/wiki/Joback_method
KDB: https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1255
McGowan Method: http://link.springer.com/article/10.1007/BF02311772
NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C74895&Units=SI

Legend

af: Acentric Factor
affp: Proton affinity
aigt: Autoignition Temperature
basg: Gas basicity
chl: Standard liquid enthalpy of combustion
cpg: Ideal gas heat capacity
cpl: Liquid phase heat capacity

dm:	Dipole Moment
fll:	Lower Flammability Limit
flu:	Upper Flammability Limit
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfl:	Liquid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
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
nfpaf:	NFPA Fire Rating
nfpah:	NFPA Health Rating
pc:	Critical Pressure
pvap:	Vapor pressure
rhol:	Liquid Density
rinpol:	Non-polar retention indices
sfust:	Entropy of fusion at a given temperature
sl:	Liquid phase molar entropy at standard conditions
srf:	Surface Tension
svapt:	Entropy of vaporization at a given temperature
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility