Pentane, 1,5-dibromo-

Other names:	1,5-Dibromopentane
	Br(CH2)5Br
	Dibromo-1,5 pentane
	Pentamethylene bromide
	Pentamethylene dibromide
Inchi:	InChI=1S/C5H10Br2/c6-4-2-1-3-5-7/h1-5H2
InchiKey:	IBODDUNKEPPBKW-UHFFFAOYSA-N
Formula:	C5H10Br2
SMILES:	BrCCCCCBr
Mol. weight [g/mol]:	229.94
CAS:	111-24-0

Physical Properties

Property code	Value	Unit	Source
gf	19.86	kJ/mol	Joback Method
hf	-93.87	kJ/mol	Joback Method
hfl	-163.00	kJ/mol	NIST Webbook
hfus	19.28	kJ/mol	Joback Method
hvap	39.59	kJ/mol	Joback Method
ie	10.23	eV	NIST Webbook
log10ws	-2.78		Crippen Method
logp	2.947		Crippen Method
mcvol	116.310	ml/mol	McGowan Method
pc	4109.14	kPa	Joback Method
rinpol	1178.00		NIST Webbook
rinpol	1208.00		NIST Webbook
rinpol	1170.00		NIST Webbook
rinpol	1170.00		NIST Webbook
rinpol	1178.00		NIST Webbook
rinpol	1178.00		NIST Webbook
rinpol	1208.00		NIST Webbook
ripol	1662.00		NIST Webbook
ripol	1673.00		NIST Webbook
ripol	1673.00		NIST Webbook
ripol	1712.00		NIST Webbook
tb	495.50	K	NIST Webbook
tc	650.13	K	Joback Method

tf	233.20 ± 0.40	K	NIST Webbook
vc	0.440	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	194.94	J/mol×K	446.12	Joback Method
cpg	204.05	J/mol×K	480.12	Joback Method
cpg	212.65	J/mol×K	514.12	Joback Method
cpg	220.76	J/mol×K	548.13	Joback Method
cpg	228.41	J/mol×K	582.13	Joback Method
cpg	235.62	J/mol×K	616.13	Joback Method
cpg	242.43	J/mol×K	650.13	Joback Method
cpl	220.66	J/mol×K	297.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	219.98	J/mol×K	294.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	220.19	J/mol×K	295.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	220.41	J/mol×K	296.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K

cpl	219.76	J/mol×K	293.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	220.84	J/mol×K	298.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	221.10	J/mol×K	299.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	221.28	J/mol×K	300.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	221.49	J/mol×K	301.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	221.73	J/mol×K	302.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K

cpl	221.95	J/mol×K	303.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	222.17	J/mol×K	304.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	222.41	J/mol×K	305.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	222.63	J/mol×K	306.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	222.85	J/mol×K	307.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	223.09	J/mol×K	308.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K

cpl	223.31	J/mol×K	309.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	223.56	J/mol×K	310.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	223.78	J/mol×K	311.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	224.03	J/mol×K	312.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	224.26	J/mol×K	313.15	Heat Capacity, Speed of Ultrasound, and Density for 1,5-Dibromopentane + Heptane within the Temperature Range from 293.15 K to 313.15 K
cpl	217.95	J/mol×K	285.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	218.27	J/mol×K	286.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	218.58	J/mol×K	288.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	218.90	J/mol×K	289.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	219.22	J/mol×K	291.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	219.54	J/mol×K	292.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	219.86	J/mol×K	294.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	220.18	J/mol×K	295.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	220.50	J/mol×K	297.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	220.72	J/mol×K	298.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	220.83	J/mol×K	298.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	221.16	J/mol×K	300.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	221.49	J/mol×K	301.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	221.82	J/mol×K	303.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	222.15	J/mol×K	304.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	222.48	J/mol×K	306.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	222.82	J/mol×K	307.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	234.02	J/mol×K	354.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	223.50	J/mol×K	310.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	223.84	J/mol×K	312.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	224.18	J/mol×K	313.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	224.52	J/mol×K	315.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	224.87	J/mol×K	316.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	225.21	J/mol×K	318.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	225.56	J/mol×K	319.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	225.91	J/mol×K	321.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	226.26	J/mol×K	322.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	226.62	J/mol×K	324.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	226.97	J/mol×K	325.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	227.33	J/mol×K	327.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	227.69	J/mol×K	328.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	228.05	J/mol×K	330.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	228.41	J/mol×K	331.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	228.77	J/mol×K	333.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	229.13	J/mol×K	334.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	229.50	J/mol×K	336.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	229.87	J/mol×K	337.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	230.24	J/mol×K	339.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	230.61	J/mol×K	340.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	230.98	J/mol×K	342.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	231.36	J/mol×K	343.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	231.73	J/mol×K	345.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	232.11	J/mol×K	346.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	232.49	J/mol×K	348.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	232.87	J/mol×K	349.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	233.25	J/mol×K	351.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K

cpl	233.63	J/mol×K	352.65	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	223.16	J/mol×K	309.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
cpl	234.28	J/mol×K	355.15	Heat Capacity of alpha,omega-Bromochloroalkanes and ?,?-Dibromoalkanes: Their Dependence on the Hydrocarbon Chain Length and Temperature (285.15 to 355.15) K
dvisc	0.0004068	Pa×s	446.12	Joback Method
dvisc	0.0018956	Pa×s	295.78	Joback Method
dvisc	0.0031782	Pa×s	265.71	Joback Method
dvisc	0.0008762	Pa×s	355.91	Joback Method
dvisc	0.0006520	Pa×s	385.98	Joback Method
dvisc	0.0005063	Pa×s	416.05	Joback Method
dvisc	0.0012437	Pa×s	325.85	Joback Method
hvapt	54.40	kJ/mol	472.50	NIST Webbook
rfi	1.50990		298.15	Thermodynamic study of (alkyl esters + a,x-alkyl dihalides) II: HE m and V E m for 25 binary mixtures {xCu-1H2u-1CO2C2H5 + (1 - x)a,x-BrCH2(CH2)v-2CH2Br}, where u = 1 to 5, a = 1 and v = x = 2 to 6
srf	0.04	N/m	293.15	The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes

srf	0.04	N/m	298.15	The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes
srf	0.04	N/m	303.15	The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes
srf	0.04	N/m	308.15	The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes
srf	0.04	N/m	313.15	The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	383.20	K	2.00	NIST Webbook
tbrp	383.00	K	2.00	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.54315e+01
Coeff. B	-4.50494e+03
Coeff. C	-7.88850e+01
Temperature range (K), min.	376.36
Temperature range (K), max.	524.03

Datasets

Speed of sound, m/s

Temperature, K - Liquid	Pressure, kPa - Liquid	Speed of sound, m/s - Liquid
292.38	100.00	1149.48
292.47	91200.00	1353.98
292.48	30400.00	1226.21
292.50	45600.00	1260.76
292.52	60800.00	1293.37
292.53	15210.00	1189.09
292.57	101320.00	1372.23
292.59	76010.00	1324.36
298.00	60800.00	1281.15
298.00	91200.00	1342.44
298.00	101330.00	1361.63
298.01	45600.00	1247.97
298.02	30410.00	1212.72
298.03	15210.00	1174.79
298.05	76000.00	1312.6
298.37	100.00	1133.01
303.00	76000.00	1301.95
303.01	15200.00	1162.07
303.01	30400.00	1200.58
303.01	60790.00	1270.04
303.01	91200.00	1331.8
303.01	101340.00	1350.72
303.02	45600.00	1236.47
303.40	100.00	1119.29
308.03	15210.00	1148.74
308.03	30410.00	1187.74
308.03	45590.00	1223.97
308.05	101330.00	1340.01
308.06	60790.00	1257.88
308.06	76000.00	1290.08
308.06	91200.00	1320.46
308.38	100.00	1105.79
313.14	76030.00	1279.29
313.16	91210.00	1310.12
313.16	101330.00	1329.99
313.17	45610.00	1212.35
313.18	60800.00	1246.82
313.20	15210.00	1135.8
313.20	30410.00	1175.46

314.36	100.00	1089.74
Reference		*https://www.doi.org/10.1007/s10765-009-0610-6*

Sources

Heat Capacity of alpha,omega-Bromochloroalkanes and 1,ω-Dichloroalkanes: Even–Odd Dependence on the Hydrocarbon Chain Length and Temperature (268.15 to 355.15) K:	https://www.doi.org/10.1021/je201002j
Thermodynamic study of (alkyl esters + a,x-alkyl dihalides) II. HE,m and VE,m {xCu-1H2u-1CO2C2H5 + (1 - x)a,x-BrCH2(CH2)v-2CH2Br}, where u = 1 to 8, v = 4 to 6, alpha = 1 and omega = 2 to 6:	https://www.doi.org/10.1016/j.jct.2005.07.009
Crippen Method	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Thermodynamic and Acoustic Properties of 1,3-Dibromopropane and 1,5-Dibromopentane within the Temperatures Range from (288 to 313) K at Pressures 0.1 to 68 MPa:	https://www.doi.org/10.1007/s10765-009-0610-6
Thermodynamic study of (alkyl esters + alpha,beta-alkyl dihalides) VIII: HE,m and VE,m {xCu-1H2u-1CO2CH2CH3 + (1 - x)alpha,omega-BrCH2(CH2)v-2CH2Br}, where u = 1 to 8, v = 4 to 6, alpha = 1 and omega = 2 to 6:	https://www.doi.org/10.1016/j.jct.2009.05.006
Heat Capacity, Speed of Ultrasound, and Density of 1,6-Dibromohexane + 1-Alkanol Mixtures from 293.15 K to 313.15 K:	https://www.doi.org/10.1021/je060200b
McGowan's Molecular Characteristic Volumes:	http://link.springer.com/article/10.1007/BF02311772
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C111240&Units=SI
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes: Thermodynamic study of (alkyl esters + alpha,omega-alkyl dihalides) IV: Hex and Vex for 25 binary mixtures {xC(u-1)H(2u-1)CO2CH3 + (1-x)alpha,omega-BrCH2(CH2)(v-2)CH2Br}, where u = 1 to 8, alpha = 1 and v = omega = 2 to 6:	https://www.doi.org/10.1016/j.jct.2018.12.042
Thermodynamic study of (alkyl esters + alpha,omega-alkyl dihalides) III: Hex and Vex for 25 binary mixtures {xCu-1H2u-1CO2C2H5 + (1 - x)alpha,omega-BrCH2(CH2)v-2CH2Br}, where u = 1 to 8, v = 4 to 6, alpha = 1 and omega = 2 to 6:	https://www.doi.org/10.1016/j.jct.2006.05.004

Legend

cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dvisc:	Dynamic viscosity
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
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
pvap:	Vapor pressure
rfi:	Refractive Index

rinpol:	Non-polar retention indices
ripol:	Polar retention indices
speedsl:	Speed of sound in fluid
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume