Hydrogen bromide

Other names:	ANHYDROUS HYDROBROMIC ACID
	Acide bromhydrique
	Acido bromidrico
	Bromowodor
	Bromwasserstoff
	Broomwaterstof
	HBr
	HYDROBROMIC ACID
	Hydrogen bromide, anhydrous-
	Hydrogen monobromide
	UN 1048
	UN 1788
Inchi:	InChI=1S/BrH/h1H
InchiKey:	CPELXLSAUQHCOX-UHFFFAOYSA-N
Formula:	BrH
SMILES:	Br
Mol. weight [g/mol]:	80.91
CAS:	10035-10-6

Physical Properties

Property code	Value	Unit	Source
af	0.0880		KDB
affp	584.20	kJ/mol	NIST Webbook
basg	557.70	kJ/mol	NIST Webbook
dm	0.80	debye	KDB
gf	-53.30	kJ/mol	KDB
hf	-36.29 ± 0.16	kJ/mol	NIST Webbook
hf	-36.26	kJ/mol	KDB
hfus	2.72	kJ/mol	Joback Method
hvap	21.88	kJ/mol	Joback Method
ie	11.67	eV	NIST Webbook
ie	11.66 ± 0.02	eV	NIST Webbook
ie	11.71	eV	NIST Webbook
ie	11.68 ± 0.03	eV	NIST Webbook
ie	11.68 ± 0.03	eV	NIST Webbook
ie	11.64 ± 0.01	eV	NIST Webbook
ie	11.71 ± 0.01	eV	NIST Webbook

ie	11.67 ± 0.01	eV	NIST Webbook
ie	11.68 ± 0.00	eV	NIST Webbook
log10ws	-0.44		Crippen Method
logp	0.578		Crippen Method
mcvol	28.360	ml/mol	McGowan Method
pc	8550.00	kPa	KDB
sgb	198.70 ± 0.00	J/mol×K	NIST Webbook
tb	206.77	K	KDB
tc	363.20	K	KDB
tf	186.34	K	KDB
tf	187.15 ± 1.50	K	NIST Webbook
tf	187.20 ± 1.00	K	NIST Webbook
tf	186.10 ± 0.02	K	NIST Webbook
vc	0.088	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	13.66	J/mol×K	264.86	Joback Method
cpg	14.65	J/mol×K	294.70	Joback Method
cpg	15.40	J/mol×K	324.54	Joback Method
cpg	15.92	J/mol×K	354.38	Joback Method
cpg	16.23	J/mol×K	384.22	Joback Method
cpg	16.37	J/mol×K	414.07	Joback Method
cpg	16.34	J/mol×K	443.91	Joback Method
dvisc	0.0003367	Pa×s	165.93	Joback Method
dvisc	0.0003118	Pa×s	182.42	Joback Method
dvisc	0.0002924	Pa×s	198.91	Joback Method
dvisc	0.0002770	Pa×s	215.40	Joback Method
dvisc	0.0002644	Pa×s	231.88	Joback Method
dvisc	0.0002539	Pa×s	248.37	Joback Method
dvisc	0.0002451	Pa×s	264.86	Joback Method
rhol	2160.00	kg/m3	216.00	KDB

Correlations

Information	Value
Property code	pvap

Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.39617e+01
Coeff. B	-1.62202e+03
Coeff. C	-3.28500e+01
Temperature range (K), min.	185.15
Temperature range (K), max.	363.15

Sources

Thermochemical study of three dibromophenol isomers:	https://www.doi.org/10.1016/j.jct.2010.08.020
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C10035106&Units=SI
Experimental thermochemical study of fluoro-, chloro- and bromo- derivatives of phenol:	https://www.doi.org/10.1016/j.jct.2011.10.020
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Calorimetric study of bromoacetophenone isomers:	https://www.doi.org/10.1016/j.jct.2014.06.028
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
KDB:	https://www.cheric.org/files/research/kdb/mol/mol1904.mol
Thermochemical study of the 2,5-dibromonitrobenzene isomer: An approach of the energetic study for the other dibromonitrobenzene isomers:	https://www.doi.org/10.1016/j.jct.2009.05.010
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l

Legend

af:	Acentric Factor
affp:	Proton affinity
basg:	Gas basicity
cpg:	Ideal gas heat capacity
dm:	Dipole Moment
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
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
pc:	Critical Pressure

pvap:	Vapor pressure
rhol:	Liquid Density
sgb:	Molar entropy at standard conditions (1 bar)
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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