

Methane, dibromo-

Other names:	CH2Br2 Dibromomethane METHYL DIBROMIDE METHYLENE BROMIDE Methylene dibromide REFRIGERANT-30B2 Rcra waste number U068 UN 2664
Inchi:	InChI=1S/CH2Br2/c2-1-3/h1H2
InchiKey:	FJBFPHVGVWTDIP-UHFFFAOYSA-N
Formula:	CH2Br2
SMILES:	BrCBr
Mol. weight [g/mol]:	173.84
CAS:	74-95-3

Physical Properties

Property code	Value	Unit	Source
dm	1.90	debye	KDB
gf	-10.59	kJ/mol	KDB
hf	-38.90	kJ/mol	KDB
hfus	8.92	kJ/mol	Joback Method
hvap	37.03	kJ/mol	NIST Webbook
hvap	37.00 ± 0.10	kJ/mol	NIST Webbook
hvap	36.97 ± 0.10	kJ/mol	NIST Webbook
ie	10.49 ± 0.02	eV	NIST Webbook
ie	9.78	eV	NIST Webbook
ie	10.41 ± 0.13	eV	NIST Webbook
ie	10.61	eV	NIST Webbook
ie	10.61	eV	NIST Webbook
ie	10.60	eV	NIST Webbook
ie	10.52 ± 0.05	eV	NIST Webbook
ie	10.50 ± 0.10	eV	NIST Webbook
ie	10.24 ± 0.02	eV	NIST Webbook
log10ws	-1.17		Estimated Solubility Method
log10ws	-1.17		Aqueous Solubility Prediction Method

logp	1.734		Crippen Method
mcvol	59.950	ml/mol	McGowan Method
pc	7100.00	kPa	KDB
rinpol	698.00		NIST Webbook
rinpol	700.00		NIST Webbook
rinpol	700.00		NIST Webbook
rinpol	704.00		NIST Webbook
rinpol	660.00		NIST Webbook
rinpol	683.00		NIST Webbook
rinpol	708.00		NIST Webbook
rinpol	683.00		NIST Webbook
rinpol	733.00		NIST Webbook
rinpol	672.20		NIST Webbook
rinpol	696.00		NIST Webbook
rinpol	653.00		NIST Webbook
rinpol	690.00		NIST Webbook
rinpol	681.70		NIST Webbook
rinpol	683.00		NIST Webbook
rinpol	671.00		NIST Webbook
rinpol	666.00		NIST Webbook
ripol	1175.95		NIST Webbook
ripol	1189.98		NIST Webbook
ripol	1166.00		NIST Webbook
ripol	1185.00		NIST Webbook
ripol	1174.00		NIST Webbook
ripol	1196.47		NIST Webbook
tb	370.00	K	KDB
tc	583.00	K	KDB
tf	220.53	K	Aqueous Solubility Prediction Method
tf	220.45 ± 0.50	K	NIST Webbook
tf	220.63 ± 0.20	K	NIST Webbook
tf	220.60	K	KDB
vc	0.215	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	74.49	J/mol×K	566.60	Joback Method
cpg	71.00	J/mol×K	495.93	Joback Method
cpg	69.00	J/mol×K	460.60	Joback Method

cpg	66.81	J/mol×K	425.27	Joback Method
cpg	64.40	J/mol×K	389.93	Joback Method
cpg	61.76	J/mol×K	354.60	Joback Method
cpg	72.83	J/mol×K	531.27	Joback Method
cpl	104.10	J/mol×K	298.15	NIST Webbook
cpl	105.30	J/mol×K	300.00	NIST Webbook
cpl	127.20	J/mol×K	298.00	NIST Webbook
dvisc	0.0012982	Pa×s	265.29	Joback Method
dvisc	0.0018193	Pa×s	242.96	Joback Method
dvisc	0.0009762	Pa×s	287.62	Joback Method
dvisc	0.0007648	Pa×s	309.94	Joback Method
dvisc	0.0006192	Pa×s	332.27	Joback Method
dvisc	0.0005148	Pa×s	354.60	Joback Method
dvisc	0.0027298	Pa×s	220.63	Joback Method
hvapt	32.92	kJ/mol	370.10	NIST Webbook
hvapt	36.50	kJ/mol	323.00	NIST Webbook
hvapt	37.80	kJ/mol	304.50	NIST Webbook
pvap	13.01	kPa	313.15	Isothermal Vapor-Liquid Equilibria of ethyl acetate + dibromomethane, or + bromochloromethane or + 1,2-dichloroethane or +1-bromo-2-chloroethane at T = 313.15 K
rfi	1.38510		298.15	Thermodynamic and Acoustic Properties of Mixtures of Dibromomethane + Heptane
rho1	2478.61	kg/m3	298.15	Vapour liquid equilibrium at T = 308.15 K for binary systems: Dibromomethane + n-heptane, bromotrichloromethane + n-heptane, bromotrichloromethane + dibromomethane, bromotrichloromethane + bromochloromethane and dibromomethane + bromochloromethane. Experimental data and modelling

rhoI	2500.00	kg/m3	293.00	KDB
rhoI	2478.36	kg/m3	298.15	(Vapor + liquid) equilibria for the binary mixtures (1-propanol + dibromomethane, or + bromochloromethane, or + 1,2-dichloroethane or +1-bromo-2-chloroethane) at T = 313.15 K.
speedsl	936.60	m/s	303.15	Excess Molar Volumes and Speed of Sound in Bromotrichloromethane + n-Heptane, Dibromomethane + n-Heptane, Bromotrichloromethane + Dibromomethane, and Bromotrichloromethane + Bromochloromethane at Temperatures from (293.15 to 313.15) K
speedsl	911.40	m/s	313.15	Excess Molar Volumes and Speed of Sound in Bromotrichloromethane + n-Heptane, Dibromomethane + n-Heptane, Bromotrichloromethane + Dibromomethane, and Bromotrichloromethane + Bromochloromethane at Temperatures from (293.15 to 313.15) K

speedsl	924.00	m/s	308.15	Excess Molar Volumes and Speed of Sound in Bromotrichloromethane + n-Heptane, Dibromomethane + n-Heptane, Bromotrichloromethane + Dibromomethane, and Bromotrichloromethane + Bromochloromethane at Temperatures from (293.15 to 313.15) K
speedsl	949.20	m/s	298.15	Excess Molar Volumes and Speed of Sound in Bromotrichloromethane + n-Heptane, Dibromomethane + n-Heptane, Bromotrichloromethane + Dibromomethane, and Bromotrichloromethane + Bromochloromethane at Temperatures from (293.15 to 313.15) K
speedsl	961.80	m/s	293.15	Excess Molar Volumes and Speed of Sound in Bromotrichloromethane + n-Heptane, Dibromomethane + n-Heptane, Bromotrichloromethane + Dibromomethane, and Bromotrichloromethane + Bromochloromethane at Temperatures from (293.15 to 313.15) K
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

srf	0.04	N/m	303.15	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	293.15	The additivity of surface and volumetric properties of alpha,omega-dihalogenoalkanes

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.46629e+01
Coeff. B	-3.27979e+03
Coeff. C	-4.34750e+01
Temperature range (K), min.	271.63
Temperature range (K), max.	394.34

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$
Coeff. A	5.46965e+01
Coeff. B	-6.03095e+03
Coeff. C	-5.79321e+00
Coeff. D	3.20020e-06
Temperature range (K), min.	220.60
Temperature range (K), max.	611.00

Sources

Determination of Henry's Law Constants Using Internal Standards
The Yaws Handbook of Vapor Pressure:

<https://www.doi.org/10.1021/je3010535>

<https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure>

Excess Molar Volumes and Speed of Sound in Bromotrichloromethane + The thermodynamic and Acoustic Properties of Mixtures of Bromomethane + Bromomethane, Liquid and ethyl acetate + dibromomethane, or + Bromochloromethane at Temperatures 1-2-dichloroethane (95) K; 1-bromo-2-chloroethane at T = 313.15 K; Temperature and Pressure Dependence of the Volumetric Properties of Binary KDB Mixtures of Dihalalkanes: Dihalalkanes: Vapour liquid equilibrium at T = 308.15 K for binary systems: Dibromomethane + n-heptane, Dibromomethane + n-hexane, Dibromomethane + Bromochloromethane + McGowan Method; bromotrichloromethane + bromochloromethane and bromochloromethane + dioxane, Pyridine, Methylcyclopentyl Methyl Ketone, and Bromochloromethane Experimental Tetrahydrofuran at 303.15 K; The auditing of surface and volumetric properties of EXCESS MOLAR ENTHALPIES OF DIBROMOMETHANE WITH DIBROMOMETHANE WITH ACETONITRILE, FURAN AND ACETOPHENONE 303.15 K: (Vapor + liquid) equilibria for the binary mixtures (1-propanol + 1-butanol and 1-butanol + 1-pentanol) of Dibromomethane with Benzene, Tetrahydrofuran, Sulfoxide, and Pyridine 2-ene at 303.15 K; Rippen Method.

<https://www.doi.org/10.1021/je300775u>
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<https://www.doi.org/10.1016/j.jct.2018.12.042>
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<https://www.doi.org/10.1016/j.jct.2004.07.012>
<https://www.doi.org/10.1021/je9005882>
https://en.wikipedia.org/wiki/Joback_method
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Legend

cpg:	Ideal gas heat capacity
cpl:	Liquid phase 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
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
rho:	Liquid Density
rinpol:	Non-polar retention indices
ripol:	Polar retention indices

speedsl:	Speed of sound in fluid
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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