Mercury

Other names: mercury element
quecksilber
quicksilver
Inchi: InChI=1S/Hg
InchiKey: QSHDDOUJBYECFT-UHFFFAOYSA-N
Formula: Hg
SMILES: [Hg]
Mol. weight [g/mol]: 200.59
CAS: 7439-97-6

Physical Properties

Property code	Value	Unit	Source
af	-0.1670		KDB
gf	31.86	kJ/mol	KDB
hf	61.38 ± 0.04	kJ/mol	NIST Webbook
hf	61.34	kJ/mol	KDB
ie	10.49 ± 0.01	eV	NIST Webbook
ie	10.44 ± 0.01	eV	NIST Webbook
ie	10.44	eV	NIST Webbook
ie	10.44	eV	NIST Webbook
ie	10.40	eV	NIST Webbook
ie	10.47 ± 0.05	eV	NIST Webbook
ie	10.43 ± 0.08	eV	NIST Webbook
ie	14.84 ± 0.00	eV	NIST Webbook
ie	10.44	eV	NIST Webbook
pc	172000.00	kPa	KDB
sgb	174.97 ± 0.01	J/mol×K	NIST Webbook
sl	75.90 ± 0.12	J/mol×K	NIST Webbook
tb	629.88	K	KDB
tb	629.70 ± 0.50	K	NIST Webbook
tb	629.81 ± 0.01	K	NIST Webbook
tc	0.00	K	NIST Webbook
tc	1750.00	K	KDB
tf	234.32	K	KDB
tf	234.50 ± 0.20	K	NIST Webbook
tf	234.31 ± 0.01	K	NIST Webbook
tf	234.30 ± 0.01	K	NIST Webbook

tf	234.29	K	Determination of melting temperatures in hydrocarbon mixtures by differential scanning calorimetry
tt	234.29 ± 0.20	K	NIST Webbook
tt	234.31	K	KDB
tt	234.30 ± 0.00	K	NIST Webbook
vc	0.043	m3/kmol	KDB
zc	0.5083020		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
rhol	13530.00	kg/m3	298.15	Osmotic and activity coefficients for five lithium salts in three non-aqueous solvents
rhol	13594.00	kg/m3	293.00	KDB
tcondl	10.20	W/m×K	390.00	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	9.05	W/m×K	332.00	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	9.50	W/m×K	352.00	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	9.90	W/m×K	370.70	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements

tcondl	8.05	W/m×K	295.60	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	10.80	W/m×K	407.70	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	11.20	W/m×K	425.90	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	12.40	W/m×K	476.60	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	13.00	W/m×K	515.20	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	8.80	W/m×K	319.50	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements
tcondl	8.50	W/m×K	312.20	A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.61630e+01
Coeff. B	-7.24765e+03
Coeff. C	-2.05000e+00
Temperature range (K), min.	234.31
Temperature range (K), max.	1735.00

Sources

The behavior of mercury in water, alcohols, monoethylene glycol and triethylene glycol II. Elemental mercury solubility in alcohols, ethers and acetone: gas plant mercury distribution; and speciation in monoethylene glycol solutions:	https://www.doi.org/10.1016/j.fluid.2018.08.014
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7439976&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Determination of melting temperatures in hydrocarbon mixtures by differential scanning calorimetry:	https://www.doi.org/10.1016/j.jct.2016.12.030
Osmotic and activity coefficients for five lithium salts in three non-aqueous solvents:	https://www.doi.org/10.1016/j.jct.2018.12.016
Liquid-phase vapor pressure measurement and thermodynamics assessment of the Hg In binary system:	https://www.doi.org/10.1016/j.tca.2009.02.020
KDB:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1954
Cheméo Relay (1.0):	
Cheméo Relay (1.0, beta):	
A Novel Instrument for the Measurement of the Thermal Conductivity of Molten Metals. Part II: Measurements:	https://www.doi.org/10.1007/s10765-006-0057-y
Solubility of Mercury in Liquid Hydrocarbons and Hydrocarbon Mixtures:	https://www.doi.org/10.1021/acs.jced.6b00173

Legend

af:	Acentric Factor
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
ie:	Ionization energy
pc:	Critical Pressure
pvap:	Vapor pressure
rhol:	Liquid Density
sgb:	Molar entropy at standard conditions (1 bar)
sl:	Liquid phase molar entropy at standard conditions

tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tcondl:	Liquid thermal conductivity
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility