lead

Inchi: InChI=1S/Pb
InchiKey: WABPQHHGFIMREM-UHFFFAOYSA-N
Formula: Pb
SMILES: [Pb]
Mol. weight [g/mol]: 207.20
CAS: 7439-92-1

Physical Properties

Property code	Value	Unit	Source
ea	0.36 ± 0.01	eV	NIST Webbook
ea	0.50	eV	NIST Webbook
hf	195.20 ± 0.80	kJ/mol	NIST Webbook
ie	7.42	eV	NIST Webbook
ie	7.42 ± 0.00	eV	NIST Webbook
ie	7.42 ± 0.00	eV	NIST Webbook
ie	7.60 ± 0.20	eV	NIST Webbook
ie	7.42	eV	NIST Webbook
ie	7.40 ± 0.40	eV	NIST Webbook
ie	7.42 ± 0.00	eV	NIST Webbook
ie	7.42 ± 0.01	eV	NIST Webbook
sgb	175.38 ± 0.01	J/mol×K	NIST Webbook
ss	64.80 ± 0.30	J/mol×K	NIST Webbook
tf	600.08 ± 0.30	K	NIST Webbook
tf	600.64 ± 0.01	K	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
speedsl	1834.00	m/s	610.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV

speedsl	1810.50	m/s	626.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	1790.30	m/s	678.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	1784.00	m/s	703.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	1769.80	m/s	787.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	1749.00	m/s	814.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	1729.80	m/s	897.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	1688.00	m/s	1078.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
tcondl	16.20	W/m×K	620.30	Measurements of the Thermal Conductivity of Molten Lead Using a New Transient Hot-Wire Sensor
tcondl	17.00	W/m×K	678.10	Measurements of the Thermal Conductivity of Molten Lead Using a New Transient Hot-Wire Sensor

tcondl	17.60	W/m×K	729.50	Measurements of the Thermal Conductivity of Molten Lead Using a New Transient Hot-Wire Sensor

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.51702e+01
Coeff. B	-2.10268e+04
Coeff. C	-2.94500e+01
Temperature range (K), min.	708.00
Temperature range (K), max.	2022.15

Sources

Calorimetric investigations of UPb3 compound:	https://www.doi.org/10.1016/j.tca.2016.05.012
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Measurements of the Thermal Conductivity of Molten Lead Using a New Transient Hot-Wire Sensor:	https://www.doi.org/10.1007/s10765-007-0182-2
Thermal conductivities of solid and liquid phases in Pb Cd and Sn Zn binary eutectic alloys:	https://www.doi.org/10.1016/j.tca.2007.01.009
The standard molar enthalpies of formation and heat capacities of PbMoO4 (s) and Pb2MoO5 (s):	https://www.doi.org/10.1016/j.jct.2017.08.011
Enthalpies of mixing of Ag Pb and Ag Au Pb liquid alloys at 973K:	https://www.doi.org/10.1016/j.tca.2007.07.015
Experimental investigation and calculation of vapor-liquid equilibria for Cu-Pb binary alloy in vacuum distillation:	https://www.doi.org/10.1016/j.fluid.2015.07.043
Experimental investigation and modelling of phase equilibria for the Ag-Cu-Fe system in vacuum distillation:	https://www.doi.org/10.1016/j.fluid.2016.02.026
Density, Surface Tension, and Viscosity of Liquid Pb-Sb Alloys:	https://www.doi.org/10.1021/acs.jced.7b01049
Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV:	https://www.doi.org/10.1007/s10765-007-0151-9
Isomorphism and phase diagram of Pb5(PO4)3F-Pb5(PO4)3Cl system:	https://www.doi.org/10.1016/j.tca.2010.11.020
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7439921&Units=SI

Legend

ea: Electron affinity

hf:	Enthalpy of formation at standard conditions
ie:	Ionization energy
pvap:	Vapor pressure
sgb:	Molar entropy at standard conditions (1 bar)
speedsl:	Speed of sound in fluid
ss:	Solid phase molar entropy at standard conditions
tcondl:	Liquid thermal conductivity
tf:	Normal melting (fusion) point

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