

silicon

Inchi: InChI=1S/Si
InchiKey: XUIMIQQOPSSXEZ-UHFFFAOYSA-N
Formula: Si
SMILES: [Si]
Mol. weight [g/mol]: 28.09
CAS: 7440-21-3

Physical Properties

Property code	Value	Unit	Source
affp	837.00	kJ/mol	NIST Webbook
basg	814.10	kJ/mol	NIST Webbook
ea	1.39 ± 0.01	eV	NIST Webbook
ea	1.39 ± 0.00	eV	NIST Webbook
ea	1.39	eV	NIST Webbook
ea	1.39 ± 0.00	eV	NIST Webbook
hf	450.00 ± 8.00	kJ/mol	NIST Webbook
ie	8.50 ± 0.50	eV	NIST Webbook
ie	8.10 ± 0.50	eV	NIST Webbook
ie	8.15	eV	NIST Webbook
ie	8.15	eV	NIST Webbook
ie	8.15 ± 0.00	eV	NIST Webbook
ie	8.20 ± 0.50	eV	NIST Webbook
ie	8.15	eV	NIST Webbook
ie	8.15	eV	NIST Webbook
sgb	167.98 ± 0.00	J/molxK	NIST Webbook
ss	18.81 ± 0.08	J/molxK	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
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speedsl	3916.10	m/s	1723.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	3929.00	m/s	1748.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	3945.90	m/s	1755.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	3973.30	m/s	1789.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	3969.00	m/s	1795.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	3976.30	m/s	1823.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	4003.00	m/s	1852.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV
speedsl	4020.00	m/s	1889.00	Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.80476e+01

Coeff. B	-4.74659e+04
Coeff. C	-5.98000e+00
Temperature range (K), min.	1908.00
Temperature range (K), max.	3538.00

Sources

The heat capacity and entropy of the lithium silicides Li ₁₇ Si ₄ and Li _{16.42} Si ₄ in the temperature range from (2 to 873) K	https://www.doi.org/10.1016/j.jct.2015.01.004
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7440213&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Temperature Dependence of the Velocity of Sound in Liquid Metals of Group XIV:	https://www.doi.org/10.1007/s10765-007-0151-9

Legend

affp:	Proton affinity
basg:	Gas basicity
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

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