

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 ± 0.00 | eV | NIST Webbook |
| ea | 1.39 | eV | NIST Webbook |
| ea | 1.39 ± 0.00 | eV | NIST Webbook |
| ea | 1.39 ± 0.01 | eV | NIST Webbook |
| hf | 450.00 ± 8.00 | kJ/mol | NIST Webbook |
| ie | 8.15 | eV | NIST Webbook |
| ie | 8.15 | eV | NIST Webbook |
| ie | 8.15 | eV | NIST Webbook |
| ie | 8.20 ± 0.50 | eV | NIST Webbook |
| ie | 8.15 ± 0.00 | eV | NIST Webbook |
| ie | 8.10 ± 0.50 | eV | NIST Webbook |
| ie | 8.50 ± 0.50 | 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 |
|---------------|-------|------|-----------------|--------|
|---------------|-------|------|-----------------|--------|

| | | | | |
|---------|---------|-----|---------|---|
| 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

| | |
|--|---|
| Temperature Dependence of the Velocity of Sound in Liquid Metals of Group IV | https://www.doi.org/10.1007/s10765-007-0151-9 |
| Heat capacity and entropy of the lithium silicides Li ₁₇ Si ₄ and Li _{16.42} Si ₄ | https://www.doi.org/10.1016/j.jct.2015.01.004 |
| 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.therc.org/research/kdb/hcprop/showprop.php?cmpid=1965 |
| 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 |

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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