

bismuth

Inchi:	InChI=1S/Bi
InchiKey:	JCXGWMGPZLAOME-UHFFFAOYSA-N
Formula:	Bi
SMILES:	[Bi]
Mol. weight [g/mol]:	208.98
CAS:	7440-69-9

Physical Properties

Property code	Value	Unit	Source
ea	0.94	eV	NIST Webbook
ea	0.95 ± 0.01	eV	NIST Webbook
ea	0.94 ± 0.10	eV	NIST Webbook
ea	1.20 ± 0.25	eV	NIST Webbook
hfus	11.11	kJ/mol	Enthalpy of Fusion of Bismuth: A Certified Reference Material for Differential Scanning Calorimetry
ie	7.29 ± 0.00	eV	NIST Webbook
ie	7.29	eV	NIST Webbook
ie	7.29	eV	NIST Webbook
ie	7.29 ± 0.00	eV	NIST Webbook
ie	7.29 ± 0.00	eV	NIST Webbook
ie	7.20 ± 0.50	eV	NIST Webbook
tt	544.00	K	Experimentally determined thermodynamic properties of schapbachite (a-AgBiS ₂) below T = 700 K

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
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tconds	8.35	W/m×K	382.65	Thermal conductivity and interfacial energy of solid Bi solution in the Bi-Al-Zn eutectic system
tconds	8.12	W/m×K	418.70	Thermal conductivity and interfacial energy of solid Bi solution in the Bi-Al-Zn eutectic system

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.61888e+01
Coeff. B	-2.07741e+04
Coeff. C	-4.17100e+01
Temperature range (K), min.	941.15
Temperature range (K), max.	1837.15

Sources

Determination of thermodynamic properties of Bi₂Mo₃O₁₂ (s), Bi₂MoO₆ (s) and Bi₂Mo₂O₇ (s): conductivity with temperature and composition of Zn in the glass and thermodynamic properties of Bi₂O₃ by a solid-oxide electrolyte EMF technique: Experimental investigation and modeling of phase equilibria for Cu-Bi and Cu-Sn alloys relevant for lead-free soldering

Equilibrium and thermodynamics of the Bi-Cu-In ternary system: The measurement of thermal conductivity variation with temperature of liquid Bi-Ni and Bi-Cu alloys

Lead-free alloy solders: Enthalpy of Fusion of Bismuth: A Certified Reference Material for Differential Scanning Calorimetry:

The Yaws Handbook of Vapor Pressure: Gibbs energy of formation of bismuth(III) oxide: Experimentally determined thermodynamic properties of bismuth(III) oxide: Interfacial energy of solid Bi solution in the Bi-Al-Zn eutectic system:

<https://www.doi.org/10.1016/j.jct.2019.105886>

<https://www.doi.org/10.1016/j.tca.2012.07.033>

<https://www.doi.org/10.1016/j.jct.2014.04.002>

<https://www.doi.org/10.1016/j.fluid.2019.03.003>

<https://www.doi.org/10.1016/j.tca.2008.02.023>

<https://www.doi.org/10.1016/j.tca.2009.09.004>

<https://www.doi.org/10.1016/j.tca.2012.12.012>

<https://www.doi.org/10.1016/j.tca.2017.09.002>

<https://www.doi.org/10.1021/je049913p>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C7440699&Units=SI>

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

<https://www.doi.org/10.1016/j.tca.2016.02.006>

<https://www.doi.org/10.1016/j.jct.2013.11.006>

<https://www.doi.org/10.1016/j.fluid.2010.02.029>

Determination of the standard molar enthalpies of formation and heat capacity of Bi₂Se₃ and the thermodynamic investigation of the Bi₂Se₃-Sb₂Te₃ system by calorimetry

<https://www.doi.org/10.1016/j.jct.2017.11.015>

<https://www.doi.org/10.1016/j.tca.2006.02.029>

Legend

ea:	Electron affinity
hfus:	Enthalpy of fusion at standard conditions
ie:	Ionization energy
pvap:	Vapor pressure
tconds:	Solid thermal conductivity
tt:	Triple Point Temperature

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