

gold

Other names:	gold element
Inchi:	InChI=1S/Au
InchiKey:	PCHJSUWPFVWCPO-UHFFFAOYSA-N
Formula:	Au
SMILES:	[Au]
Mol. weight [g/mol]:	196.97
CAS:	7440-57-5

Physical Properties

Property code	Value	Unit	Source
ea	2.31 ± 0.00	eV	NIST Webbook
ea	2.30 ± 0.10	eV	NIST Webbook
ea	2.31 ± 0.00	eV	NIST Webbook
ea	2.93 ± 0.05	eV	NIST Webbook
ie	9.23	eV	NIST Webbook
ie	9.23	eV	NIST Webbook
ie	9.22	eV	NIST Webbook
ie	9.23 ± 0.00	eV	NIST Webbook
ie	8.50 ± 0.80	eV	NIST Webbook
ie	9.21 ± 0.05	eV	NIST Webbook
ie	9.00 ± 0.50	eV	NIST Webbook
ie	9.23	eV	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
dvisc	0.0056250	Paxs	1373.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys

dvisc	0.0054700	Paxs	1423.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys
dvisc	0.0049630	Paxs	1473.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys
dvisc	0.0047640	Paxs	1523.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys
dvisc	0.0044950	Paxs	1573.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys
dvisc	0.0042760	Paxs	1623.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys
dvisc	0.0039810	Paxs	1673.00	A Novel Vibrating Finger Viscometer for High-Temperature Measurements in Liquid Metals and Alloys

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.67897e+01
Coeff. B	-3.69640e+04
Coeff. C	-9.21700e+01
Temperature range (K), min.	1226.00
Temperature range (K), max.	3129.15

Sources

Integral enthalpy of mixing of the liquid ternary Au-Cu-Sn system: NIST Webbook:	https://www.doi.org/10.1016/j.tca.2008.01.014 http://webbook.nist.gov/cgi/cbook.cgi?ID=C7440575&Units=SI
Thermodynamic mixing effects of liquid ternary Au-Fe-Pd alloys by the Yaws-Handbook-of-Vapor-Pressure-Handbook-of-Vapor-Pressure-mass Pressure-metry:	https://www.doi.org/10.1016/j.tca.2012.02.012 https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Enthalpies of mixing of Au-Pb and Ag-Au-Pb liquid alloys at 973K: Thermodynamic properties of liquid Au-Cu-Sn alloys determined from Acoustic Vibrating-Finger Viscometer	https://www.doi.org/10.1016/j.tca.2007.07.015 https://www.doi.org/10.1016/j.tca.2011.08.011 https://www.doi.org/10.1007/s10765-016-2104-7
Thermodynamic stability of AuSe at temperature from (400 to 700) K by a 3D-rotational approach	https://www.doi.org/10.1016/j.jct.2013.11.031 https://www.doi.org/10.1016/j.jct.2015.01.010
Thermodynamic properties of liquid (antimony + tin) and (gold + antimony + tin) alloys determined from silver-gold-gallium alloys determined from EMF measurements	https://www.doi.org/10.1016/j.tca.2018.02.012 https://www.doi.org/10.1016/j.tca.2009.05.010
Enthalpy of mixing of liquid Ag-Ga, Au-Ce and Ag-Au-Ga alloys: Standard enthalpies of formation of Ce-Au congruent compounds (CeAu, CeAu ₂ , and Ce ₁₄ Au ₅₁):	https://www.doi.org/10.1016/j.jct.2016.12.020 https://www.doi.org/10.1016/j.jct.2012.02.029

Legend

dvisc:	Dynamic viscosity
ea:	Electron affinity
ie:	Ionization energy
vpap:	Vapor pressure

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