Uranium

Inchi: InChI=1S/U
InchiKey: JFALSRSLKYAFGM-UHFFFAOYSA-N
Formula: U
SMILES: [U]
Mol. weight [g/mol]: 238.03
CAS: 7440-61-1

Physical Properties

Property code	Value	Unit	Source
affp	995.20	kJ/mol	NIST Webbook
basg	973.20	kJ/mol	NIST Webbook
hf	533.00 ± 8.00	kJ/mol	NIST Webbook
ie	6.19 ± 0.00	eV	NIST Webbook
ie	6.10 ± 0.10	eV	NIST Webbook
ie	6.19	eV	NIST Webbook
ie	6.22 ± 0.02	eV	NIST Webbook
ie	6.00 ± 0.30	eV	NIST Webbook
ie	6.09 ± 0.11	eV	NIST Webbook
ie	6.00 ± 0.50	eV	NIST Webbook
ie	6.00 ± 0.50	eV	NIST Webbook
ie	6.19 ± 0.00	eV	NIST Webbook
ie	6.08 ± 0.08	eV	NIST Webbook
ie	6.05 ± 0.07	eV	NIST Webbook
ie	6.19	eV	NIST Webbook
ie	6.05 ± 0.07	eV	NIST Webbook
ie	6.30 ± 0.30	eV	NIST Webbook
ie	6.80 ± 1.50	eV	NIST Webbook
ie	6.20 ± 0.50	eV	NIST Webbook
ie	6.19 ± 0.06	eV	NIST Webbook
ie	6.10 ± 0.30	eV	NIST Webbook
ie	6.00 ± 0.50	eV	NIST Webbook
ie	6.19 ± 0.06	eV	NIST Webbook
ie	6.11 ± 0.05	eV	NIST Webbook
sgb	199.79 ± 0.10	J/mol×K	NIST Webbook
ss	50.20 ± 0.20	J/mol×K	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.58761e+01
Coeff. B	-5.35877e+04
Coeff. C	3.26850e+02
Temperature range (K), min.	2325.15
Temperature range (K), max.	4402.15

Sources

Thermodynamic properties of ternary Me-Ga-In (Me = La, U) alloys in a fused CaCl2-LiCl-KCl system:	https://www.doi.org/10.1016/j.jct.2018.10.014
Thermodynamics of uranium in (Ga + Sn) eutectic alloy:	https://www.doi.org/10.1016/j.jct.2015.09.023
A calorimetric investigation of A2[(UO2)2(WO5)O] compounds with A = K, Rb and Cs and calculated phase relations in the K2WO4-UO3-H2O and K2MoO4-K2WO4-UO3-H2O systems:	https://www.doi.org/10.1016/j.jct.2017.03.039
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7440611&Units=SI
Cheméo Relay (1.0, beta):	
A calorimetric and thermodynamic investigation of A2[(UO2)2(MoO4)O2] compounds with A = K and Rb and calculated phase relations in the system (K2MoO4 + UO3 + H2O):	https://www.doi.org/10.1016/j.jct.2015.06.028
A calorimetric and thermodynamic investigation of cesium uranyl molybdate, Cs2[(UO2)2(MoO4)O2], and calculations of phase relations in the system (Cs2MoO4 + UO3 + H2O):	https://www.doi.org/10.1016/j.jct.2019.05.012
Calorimetric investigation of the compound:	https://www.doi.org/10.1016/j.tca.2016.05.012
An experimental calorimetric and a DFT + U study of the thermodynamic properties of Cs2[(UO2)2(MoO4)2(WO3)2]:	https://www.doi.org/10.1016/j.jct.2019.07.015
A calorimetric and thermodynamic investigation of cesium uranyl molybdate, Cs2[(UO2)2(MoO4)2], and calculations of phase relations in the system (Cs2MoO4 + UO3 + H2O):	https://www.doi.org/10.1016/j.jct.2012.09.014
Thermodynamic properties and behaviour of A2[(UO2)(MoO4)2] compounds with A = Li, Na, K, Rb, and Cs:	https://www.doi.org/10.1016/j.jct.2014.07.009
Investigation in the variation of Gibbs energy of formation of RE6UO12 (RE = La, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Tm, Yb, Lu) along the 4f series:	https://www.doi.org/10.1016/j.jct.2019.06.030
Cheméo Relay (1.0):	
Thermodynamic investigation of Na2U2O7 using Knudsen effusion mass spectrometry and high temperature X-ray diffraction:	https://www.doi.org/10.1016/j.jct.2015.06.026

Legend

affp:	Proton affinity
basg:	Gas basicity
hf:	Enthalpy of formation at standard conditions
ie:	Ionization energy
pvap:	Vapor pressure

sgb: Molar entropy at standard conditions (1 bar)

ss: Solid phase molar entropy at standard conditions