Aluminum tris(acetylacetonate)

Other names:	Aluminum 2,4-pentanedionate
	Aluminum Chelate A
	Aluminum acetylacetonate
	Aluminum triacetylacetonate
	Aluminum(III) acetylacetonate
	Aluminum, tris(2,4-pentanedionato)-
	Aluminum, tris(2,4-pentanedionato-O,O')-, (OC-6-11)-
	Aluminum, tris(2,4-pentanedionato-«kappa»O,«kappa»O')-, (OC-6-11)-
	Aluminum, tris(2,4-pentanedionato-«kappa»O2,«kappa»O4)-, (OC-6-11)-
	Aluminum, tris(2,4-pentanedionato-Â«kappaÂ»O,Â«kappaÂ»O')-, (OC-6-11)-
	Aluminum, tris(2,4-pentanedionato-Â«kappaÂ»O2,Â«kappaÂ»O4)-, (OC-6-11)-
	NSC 4650
	Tris(2,4-pentanedionato)aluminum
	Tris(2,4-pentanedione)aluminum
	Tris(acetylacetonato) aluminium
	Tris(acetylacetonato) aluminium(III)
	Tris(acetylacetonato)aluminum
	Tris(acetylacetone)aluminum
	Tris(acetylacetonyl)aluminum
	aluminium tris(2,4-pentanedionato-O,O')
	tris(pentane-2,4-dionato)aluminum
Inchi:	InChI=1S/3C5H8O2.Al/c3*1-4(6)3-5(2)7;/h3*3,6H,1-2H3;/q;;;+3/p-3/b3*4-3-;
InchiKey:	KILURZWTCGSYRE-LNTINUHCSA-K
Formula:	C15H21AlO6
SMILES:	CC(=O)C=C(C)[O-].CC(=O)C=C(C)[O-].CC(=O)C=C(C)[O-].[AlH3]
Mol. weight [g/mol]:	324.31
CAS:	13963-57-0

Physical Properties

Property code	Value	Unit	Source
hf	-1671.20 ± 4.60	kJ/mol	NIST Webbook
hfs	-1792.90 ± 1.90	kJ/mol	NIST Webbook
hsub	120.00 ± 3.00	kJ/mol	NIST Webbook
hsub	121.70 ± 4.20	kJ/mol	NIST Webbook
hsub	121.70 ± 4.20	kJ/mol	NIST Webbook
hsub	121.80 ± 1.50	kJ/mol	NIST Webbook

hvap	78.70 ± 0.90	kJ/mol	NIST Webbook
ie	7.78 ± 0.05	eV	NIST Webbook
ie	7.95 ± 0.05	eV	NIST Webbook
ie	8.18	eV	NIST Webbook
ie	7.50	eV	NIST Webbook
ie	8.27 ± 0.13	eV	NIST Webbook
ss	479.10	J/mol×K	NIST Webbook
tf	466.70 ± 0.20	K	NIST Webbook
tf	467.70 ± 0.50	K	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cps	321.40	J/mol×K	298.00	NIST Webbook
hfust	35.20	kJ/mol	463.00	NIST Webbook
hfust	33.70	kJ/mol	466.70	NIST Webbook
hfust	32.70	kJ/mol	458.00	NIST Webbook
hfust	33.70	kJ/mol	466.70	NIST Webbook
hsubt	101.80	kJ/mol	377.50	NIST Webbook
hsubt	102.00 ± 3.20	kJ/mol	448.00	NIST Webbook
hsubt	24.30	kJ/mol	458.00	NIST Webbook
hsubt	66.10 ± 3.30	kJ/mol	398.00	NIST Webbook
hsubt	20.50	kJ/mol	446.50	NIST Webbook
hsubt	93.00	kJ/mol	428.00	NIST Webbook
hvapt	107.10	kJ/mol	466.10	Determination of the enthalpies of sublimation and evaporation from thermogravimetric data: Application to metalorganic complexes of Al and Cr
psub	0.17	kPa	434.22	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.10	kPa	424.07	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.14	kPa	425.25	Thermodynamics of sublimation of aluminium triacetylacetonate

psub	0.16	kPa	428.70	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.18	kPa	428.71	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.20	kPa	434.07	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.06	kPa	423.94	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.18	kPa	434.17	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.12	kPa	423.61	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.29	kPa	439.01	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.31	kPa	439.17	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.38	kPa	443.96	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.38	kPa	443.96	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.41	kPa	444.16	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.43	kPa	444.30	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.52	kPa	448.75	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.56	kPa	449.01	Thermodynamics of sublimation of aluminium triacetylacetonate
psub	0.51	kPa	449.15	Thermodynamics of sublimation of aluminium triacetylacetonate

psub	0.76	kPa	454.25	Thermodynamics of sublimation of aluminium triacetylacetonate	
psub	1.06	kPa	459.20	Thermodynamics of sublimation of aluminium triacetylacetonate	
psub	1.43	kPa	464.29	Thermodynamics of sublimation of aluminium triacetylacetonate	
psub	1.73	kPa	467.45	Thermodynamics of sublimation of aluminium triacetylacetonate	
psub	0.18	kPa	434.16	Thermodynamics of sublimation of aluminium triacetylacetonate	
sfust	72.10	J/mol×K	466.70	NIST Webbook	

Sources

Determination and correlation of infinite dilution binary diffusion coefficients for nanoparticle material and aluminium triacetylacetonate Determination of the enthalpies of sublimation and evaporation from NIST Webbook: thermogravimetric data: Application to metalorganic complexes of Al and Cr:

https://www.doi.org/10.1016/j.fluid.2016.01.042

https://www.doi.org/10.1016/j.tca.2006.08.008

https://www.doi.org/10.1016/j.tca.2008.12.032

http://webbook.nist.gov/cgi/cbook.cgi?ID=C13963570&Units=SI

Legend

cps: Solid phase heat capacity

hf: Enthalpy of formation at standard conditions

hfs: Solid phase enthalpy of formation at standard conditions

hfust: Enthalpy of fusion at a given temperature

hsub: Enthalpy of sublimation at standard conditions

hsubt: Enthalpy of sublimation at a given temperature

hvap: Enthalpy of vaporization at standard conditions

hvapt: Enthalpy of vaporization at a given temperature

ie: Ionization energy

psub: Sublimation pressure

sfust: Entropy of fusion at a given temperature

ss: Solid phase molar entropy at standard conditions

tf: Normal melting (fusion) point

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