



>>Entry Name: Sillimanite

CAS Registry Number: 12141-45-6

Related CAS Registry Numbers(s): 12141-46-7 58425-86-8 159995-97-8

Extra CAS Registry Numbers(s): 1335-30-4

Al_2SiO_5

Molecular Formula: $\text{Al}_2\text{O}_5\text{Si}$

Molecular Weight: 162.046

Accurate Mass: 161.91458

Percentage Composition: Al 33.30%; O 49.37%; Si 17.33%

Source/Synthesis: Obt. from fused oxides. Mineral in sands and metamorphic rocks

Use/Importance: Ceramic component, refractory, molding sand, cracking and isomerisation catalyst

Physical Description: White solid

Melting Point: $\text{Mp } 1816^\circ$

Other Data: $\Delta H_f^\circ -2584.4 \text{ kJ mol}^{-1}$. Thermal cond. $1.59 \text{ W K}^{-1} \text{ m}^{-1}$. Thermal exp. 5.4×10^{-6}

References:

Agrell, S.O. *et al.*, *J. Am. Ceram. Soc.*, 1960, **43**, 69, (*cryst struct, optical data*)

Holm, J.L., *Am. Mineral.*, 1966, **51**, 1608, (*thermodyn*)

Raymond, M. *et al.*, *J. Chem. Phys.*, 1970, **53**, 4110, (*Al-27 nqr*)

Howald, R.A. *et al.*, *J. Phys. Chem.*, 1978, **82**, 2199, (*thermodyn*)

Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **5**, 247; **24**, 865, (*rev*)

Winter, J.K. *et al.*, *Am. Mineral.*, 1979, **64**, 573, (*cryst struct*)

Smith, K.A. *et al.*, *Am. Mineral.*, 1983, **68**, 1206, (*Si-29 nmr*)

Mägi, M. *et al.*, *J. Phys. Chem.*, 1984, **88**, 1518, (*Si-29 nmr*)