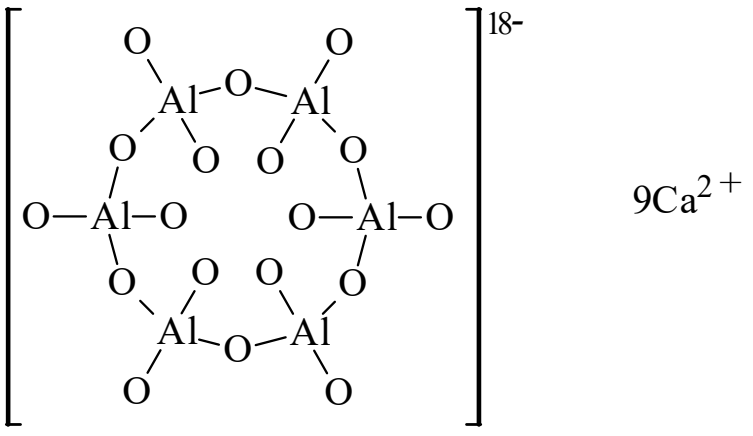
>>**Entry Name: Aluminium calcium oxide ($Al_2Ca_3O_6$)**
Synonym(s): C_3A. Calcium aluminate



CAS Registry Number: 12042-78-3
Extra CAS Registry Numbers(s): 12042-80-7 12445-36-2

Molecular Formula: $Al_2Ca_3O_6$
Molecular Weight: 270.193
Accurate Mass: 269.820341
Percentage Composition: Al 19.97%; Ca 44.50%; O 35.53%
Source/Synthesis: Synth. by sudden chilling of CaO-Al_2O_3 melt from 1539°
Use/Importance: Component of Portland cement
Physical Description: White cryst. (melt)
Melting Point: Mp 1539°
Other Data: Several similar compds. including hydrates descr. Reacts with water to give $2CaO.Al_2O_3.8H_2O$ <20° and $3CaO.Al_2O_3.6H_2O$ >20°. Dec. to CaO + liq. at 1535°. $\Delta H^{\circ}_{f\,298}$ –3587.8 kJ mol^{-1}, S°_{298} 204.0 J K^{-1} mol^{-1}

References:

Weiss, R., *Acta Cryst.*, 1964, **17**, 1329, *(hydrate)*
Nurse, R.W. *et al.*, *Trans. Br. Ceram. Soc.*, 1965, **64**, 409, *(phase diagram)*
Tarte, P., *Spectrochim. Acta A*, 1967, **23**, 2127, *(ir)*
Kor, C.J.W. *et al.*, *J. Iron Steel Inst., London*, 1968, **206**, 700, *(phase diagram)*
Brooksbank, D., *J. Iron Steel Inst., London*, 1968, **208**, 495, *(thermal exp)*
Imlach, J.A. *et al.*, *Trans. Br. Ceram. Soc.*, 1973, **72**, 221, *(system with FeO)*
Mondal, P. *et al.*, *Acta Cryst. B*, 1975, **31**, 689, *(cryst struct)*
Allibert, M. *et al.*, *J. Am. Ceram. Soc.*, 1981, **64**, 307, *(thermodyn)*
Eliezer, I. *et al.*, *J. Phys. Chem.*, 1981, **85**, 2835, *(thermodyn)*
Bartl, H. *et al.*, *Fresenius' Z. Anal. Chem.*, 1986, **324**, 124-126, *(hexahydrate, cryst struct)*
Müller, D. *et al.*, *Polyhedron*, 1986, **5**, 779, *(Al-27 nmr)*

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