



>>Entry Name: Sodium tetrachloroaluminate(III) (NaAlCl₄)

Synonym(s): Sodium aluminium chloride (NaAlCl₄). Tetrachloroaluminate(1-), sodium salt, 8Cl

CAS Registry Number: 7784-16-9

NaAlCl₄

Molecular Formula: AlCl₄Na

Molecular Weight: 191.782

Accurate Mass: 189.846714

Percentage Composition: Al 14.07%; Cl 73.94%; Na 11.99%

Source/Synthesis: Synth. by treating a suspension of NaCl in SO₂Cl₂ with AlCl₃ in SO₂Cl₂

Use/Importance: Catalyst for cracking of hydrocarbons

Physical Description: Pale yellow orthorhombic cryst.

Melting Point: Mp 151° (157°)

Other Data: ΔH_f° 1142 kJ mol⁻¹; ΔG_f° 996 kJ mol⁻¹; S° 188 J K⁻¹ mol⁻¹. Monomers and dimers detected by ms in vapour

Aldrich: 45158-4

References:

Baenziger, N.C., *Acta Cryst.*, 1951, **4**, 216, (*cryst struct*)

Beattie, I.R. *et al.*, *J.C.S.(A)*, 1967, 984, (*ir*)

Barbier, P. *et al.*, *C. R. Hebd. Seances Acad. Sci. Ser. C*, 1971, **272**, 66, (*synth*)

Scheinert, W. *et al.*, *Z. Naturforsch., A*, 1976, **31**, 1354, (*Na-23, Al-27, Cl-35 nmr, nqr*)

Wallart, F. *et al.*, *J. Raman Spectrosc.*, 1980, **9**, 55, (*Raman, cryst struct*)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 90, (*thermodyn data*)

Berg, R.W. *et al.*, *Inorg. Chem.*, 1991, **30**, 981, (*synth, high temp cryst struct, Al-27 nmr*)