



>>Entry Name: Aluminium nitrate

CAS Registry Number: 13473-90-0

Related CAS Registry Numbers(s): 25749-23-9

$\text{Al}(\text{NO}_3)_3$

Molecular Formula: AlN_3O_9

Molecular Weight: 212.996

Accurate Mass: 212.944996

Percentage Composition: Al 12.67%; N 19.73%; O 67.60%

Source/Synthesis: Obt. by thermal dec. of $\text{Al}(\text{NO}_3)_3\text{N}_2\text{O}_5$

Physical Description: White v. hygroscopic solid

Boiling Point: $\text{Bp}_{0.01}$ 50°

Other Data: Dec. >65° to oxides

Hazard & Toxicity: Explodes with Et_2O or C_6H_6

>>Derivative: Nonahydrate

Synonym(s): Hexaaquaaluminium(3+) trinitrate trihydrate

CAS Registry Number: 7784-27-2

Source/Synthesis: Synth. from HNO_3 and $\text{Al}(\text{OH})_3$

Use/Importance: Commercially available

Physical Description: Colourless plates

Melting Point: Mp 73.5°

Solubility: Sol. H_2O , Me_2CO , alcohols

Other Data: Formulated as $[\text{Al}(\text{OH}_2)_6]^{3(+)}3[\text{NO}_3^{(-)}]\cdot 3\text{H}_2\text{O}$. Dec. above 130°

Aldrich: 22941-5

Fluka: 6275

Sigma: A4524

>>Derivative: N_2O_5 adduct

Molecular Formula: $\text{AlN}_5\text{O}_{14}$

Molecular Weight: 321.007

Accurate Mass: 320.925719

Percentage Composition: Al 8.41%; N 21.82%; O 69.78%

References:

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1259B, (ir)

Archambault, J.D. *et al.*, *J. Inorg. Nucl. Chem.*, 1961, **17**, 130, (synth)

Addison, C.C. *et al.*, *J.C.S.(A)*, 1966, 1434, (synth, ir)

Messier, D.R. *et al.*, *Am. Ceram. Soc. Bull.*, 1972, **51**, 692, (dta)

Shirokova, G.N. *et al.*, *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1976, **21**, 799, (synth, props)

Krivtsov, N.V. *et al.*, *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1976, **21**, 1741, (thermodyn props)

Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **2**, 217

Hermansson, K., *Acta Cryst. C*, 1983, **39**, 925, (struct, nd)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, AHD750; AHD900