



>>Entry Name: Aluminium nitride (AlN)

CAS Registry Number: 24304-00-5

AlN

Molecular Formula: AlN

Molecular Weight: 40.988

Accurate Mass: 40.984613

Percentage Composition: Al 65.83%; N 34.17%

General Statement: Wurtzite struct.

Source/Synthesis: Synth. from Al and N₂ or Al₂O₃, C and N₂ at 1400-1500°; from R₃AlNH₃ or Cl₃AlNH₃ at 1200°; obt. by chemical vapour deposition methods. High purity materials synth. from organometallic or polymeric precursors by either a pyrolysis or carbothermal reduction process

Use/Importance: Used in high power integrated circuits and acoustic devices. Refractory. Hard. Commercially available

Physical Description: White air stable prismatic needles. Stable in acid. Slow dec. in hot conc. alkali

Melting Point: Mp 2400°

Other Data: E_g 6.2 eV. Electrical cond. $10^{-12} \Omega^{-1} m^{-1}$. Thermal cond. $320 W m^{-1} K^{-1}$. Relative permittivity ϵ 4.8. $\Delta H_{f298}^\circ -318 kJ mol^{-1}$; $S_{298}^\circ 20.1 J K^{-1} mol^{-1}$

Aldrich: 24190-3

References:

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McGuire, G.E. *et al.*, *Inorg. Chem.*, 1973, **12**, 2450, (*pe*)
O'Keefe, M. *et al.*, *Acta Cryst. B*, 1978, **34**, 3519, (*cryst struct*)
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