



>>Entry Name: Lithium nitride (Li₃N), 8CI

CAS Registry Number: 26134-62-3

Li₃N

Molecular Formula: Li₃N

Molecular Weight: 34.83

Accurate Mass: 35.051083

Percentage Composition: Li 59.79%; N 40.21%

Source/Synthesis: Prepared by direct reaction between Li and N₂ at high temp. (800°) and pressure (10-12atm.). Cryst. may be grown by reaction of N₂ gas with liquid Na-Li mixtures in steel vessels at 450°

Use/Importance: Electrolyte component for use in Li batteries

Physical Description: Purple hexagonal cryst.; sensitive to atmosphere; reacts with H₂O with formation of LiOH and evolution of NH₃

Melting Point: Mp 813°

Other Data: $\Delta H_f^\circ -157 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -129 \text{ kJ mol}^{-1}$; $S^\circ 62.6 \text{ J K}^{-1} \text{ mol}^{-1}$

Aldrich: 39955-8

References:

Gmelin Handbook Inorg. Chem., Syst. No. 20, 1960, 273, (rev, bibl)

Messer, C.E., *Spec. Publ. - Chem. Soc.*, 1967, **22**, 183, (rev)

Rabenau, A. *et al.*, *J. Less-Common Met.*, 1976, **50**, 155, (cryst struct)

Down, M.G. *et al.*, *J. Cryst. Growth*, 1979, **47**, 133, (cryst growth)

Inorg. Synth., 1983, **22**, 48; 1995, **30**, 38, (synth)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 1461, (thermochem data)

Gardner, M.P. *et al.*, *Lithium: Curr. Appl. Sci. Med. Technol.*, (Ed. Bach. RO), Wiley, NY, 1985, 195, (synth)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, LHM000