



>>Entry Name: Amminetrihydroboron, 10Cl

Synonym(s): Borane monoammoniate, 8Cl. Borane compound with ammonia. Ammonia borane. Borane ammoniate

CAS Registry Number: 13774-81-7

Related CAS Registry Numbers(s): 17596-45-1

$\text{H}_3\text{N-BH}_3$

Molecular Formula: BH_6N

Molecular Weight: 30.865

Accurate Mass: 31.059329

Percentage Composition: B 35.03%; H 19.59%; N 45.38%

Source/Synthesis: Synth. from $\text{B}_2\text{H}_6 + \text{NH}_3$ in org. solvs, or from $(\text{NH}_4)_2\text{CO}_3 + \text{NaBH}_4$ in THF

Use/Importance: Reducing agent for aldehydes and ketones

Physical Description: Air-stable white cryst.

Melting Point: Mp 112-114 dec.°

Solubility: Sol. H_2O , MeOH; mod. sol. THF, Et_2O , CHCl_3 , EtOAc

Hazard & Toxicity: May explode when heated

Aldrich: 28771-7

Fluka: 15576

>>Derivative: Li salt

Synonym(s): Lithium amidotetrahydroborate. LAB

Molecular Formula: BH_5LiN

Molecular Weight: 36.798

Percentage Composition: B 29.38%; H 13.69%; Li 18.86%; N 38.06%

Source/Synthesis: Synth. from $\text{H}_3\text{N-BH}_3$ and Butyllithium [HDJ11-O](#) in THF

Use/Importance: Highly nucleophilic reducing agent

Physical Description: Not isol.

References:

Shore, S.G. *et al.*, *Inorg. Chem.*, 1964, **3**, 914, (*synth*)

Smith, J. *et al.*, *J. Mol. Spectrosc.*, 1973, **45**, 327, (*ir, matrix isol*)

Noeth, H. *et al.*, *Chem. Ber.*, 1974, **107**, 3070, (*B-11 nmr, N-14 nmr*)

Hu, M.G. *et al.*, *J. Inorg. Nucl. Chem.*, 1977, **39**, 2147, (*synth*)

Andrews, G.C. *et al.*, *Tet. Lett.*, 1980, **21**, 693; 697, (*use*)

Hoon, C.F. *et al.*, *J. Phys. C: Solid State Phys.*, 1983, **16**, 6129, (*cryst struct*)

Wrackmeyer, B. *et al.*, *J. Magn. Reson.*, 1986, **66**, 172, (*N-15 nmr*)

Myers, A.G. *et al.*, *Tet. Lett.*, 1996, **37**, 3623, (*deriv, synth, reactions*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, BMB150, (*haz*)