

ALMABOR[®]

AMINE BORANES



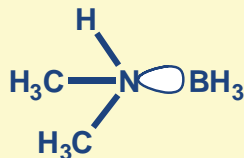
**ENABLING NEW FRONTIERS IN
ORGANOBORON CHEMISTRY**



Anderson
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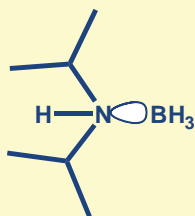
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A Specialty Chemical Company



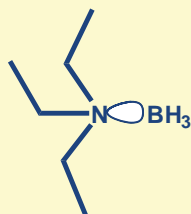
Borane Dimethylamine Complex

CAS# 74-94-2



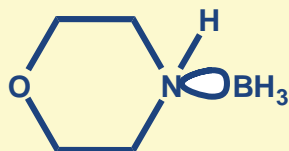
Borane Diisopropylamine Complex

CAS# 55124-35-1



Borane Triethylamine Complex

CAS# 1722-26-5



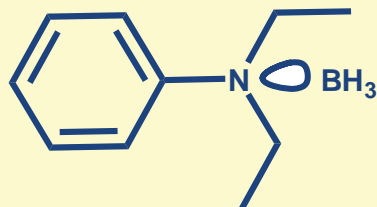
Borane Morpholine Complex

CAS# 4856-95-5



Borane Pyridine Complex

CAS# 110-51-0



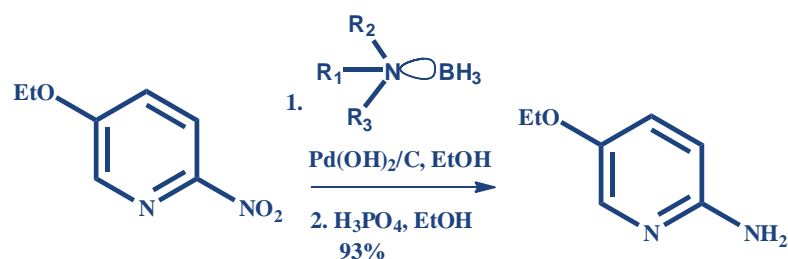
Borane N,N-Diethylaniline Complex

CAS# 13289-97-9

Amine borane complexes, on the other hand, are versatile reducing agents which avoid some of the problems and challenges associated with other borane reducing agents. They are typically more stable borane sources. While they are somewhat less reactive than borane complexes of ethers or sulfides, they do not have the safety and environmental problems associated with borane dimethylsulfide's flammability, volatility and noxious odor.

Amine boranes are highly selective reducers of carbonyl groups such as aldehydes and ketones. The reduction of benzaldehyde produces benzyl alcohol.¹ They are inert towards carboxylic acids, esters or other functional groups. The use of catalyst can improve the process dramatically.^{2,3}

The amine borane adducts have a wide range of physical and chemical properties and are used in a variety of applications in the polymer, dye, metal plating and pharmaceutical industries.



- **Versatile Reducing Agents**
- **Stable Borane Source**
- **Readily Soluble in many Solvents**
- **Efficient Chemistry Performance**
- **Easily Used On Large Scale**
- **Convenient Workup and Recovery of the Product**
- **Possibility to Recover and Recycle Amine**
- **Custom Packaging**
- **Commercial Quantities**
- **Custom Development of product for specific applications**
- **Technical Support for safe handling and application development**

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¹ Hutchkins, R. O.; Learn, K.; Nazer, B.; Pytlewski, D.; Petler, A. *Organic Preparations and Procedure Int.* 1984, 16(5), 335.

² Burkhardt et al. US 8,013,189 B2

³ Beaudin, J. et al. *Org. Process Res. Dev.* 2003, 7, 873.

Anderson Development Company

A Specialty Chemical Company



As the world's largest merchant producer of specialty borate esters and organoborate derivatives to industry, Anderson Development Company (ADC) is known globally for high quality products combined with world-class service and support. Anderson Development Company offers R & D, bench scale, kilo-scale, pilot plant and bulk manufacturing capabilities at our Adrian, Michigan, site. Almabor® products are available for lab and commercial use and many Almabor® products are in stock for immediate delivery anywhere in the world. The use of Almabor® products can often offer more mild reaction conditions when compared to alternative synthetic routes. Ask us how we can help improve your routes through the use of Almabor® products.

Almabor® products are known for high purity and consistency, offering greater cost efficiency, and improved yields. With ADC's management system built on the foundation of ISO9000, ISO14000, cGMP and SEMI practices and with systems confirmed with audits by pharmaceutical and electronics innovators, the reliability of quality and supply is a certainty.

From our headquarters, laboratories, pilot plant, 2 manufacturing facilities, warehousing and bulk storage facilities in Adrian, Michigan, ADC is positioned to develop and provide innovative solutions for even your most complex problems.



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