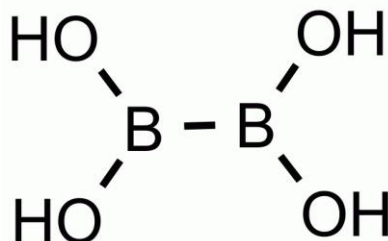


**Product Name:** Tetrahydroxydiborane

**Catalog Number:** T13348



**Size:** 5g, 25 g, 100g, 500g, kilogram and multi-kilogram quantities available

**Molecular Formula:** B<sub>2</sub>H<sub>4</sub>O<sub>4</sub> **MW:** 89.65 **CAS:** 13675-18-8

**Solubility:** H<sub>2</sub>O soluble

**Storage:** Store at room temperature under dry conditions, hygroscopic in air.

**Synonyms:** hypoboric acid; sub-boric acid; diboron tetrahydroxide

**Purity:** 97%

**Field of Interest:** Organic Synthesis of Organoboron compounds

**Background:** Tetrahydroxydiborane is an air and water stable reagent that has demonstrated synthetic versatility in a wide variety of modern synthetic chemical reactions. As a laboratory and industrial scale reagent, it is useful for producing boronic acids from aryl and heteroaryl electrophiles<sup>3</sup>, β-borane derivatives of α,β-unsaturated carbonyl compounds<sup>4</sup>, aryl chlorides<sup>5</sup>, and vinyl cyclopropanes, vinyl aziridines, and allyl acetates.<sup>6,7</sup> The catalytic transformations proceed under mild and neutral conditions, and many chemical functionalities are tolerated.

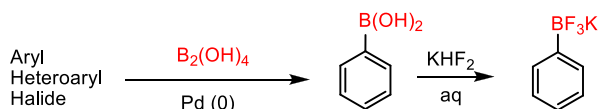
#### References

- (1) Trice *et al.*, *Abstracts*, 242<sup>nd</sup> ACS National Meeting and Exposition, Denver, CO, USA, August 28-Sept. 1, 2011, ORGN-183
- (2) Molander *et al.*, *Organic Letters*, **13**, 4684 (2011)
- (3) Molander *et al.*, *J. Am. Chem. Soc.* **132**, 17701 (2010)
- (4) Dutheuil *et al.*, *Synthesis* **14**, 2293 (2008)
- (5) Sebelius *et al.*, *J. Am. Chem. Soc.* **127**, 10478 (2010)

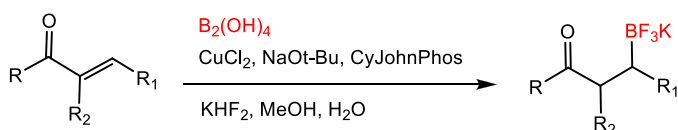
Catalog Number: T13348

## Synthetically Useful Chemical Reactions of Tetrahydroxydiborane

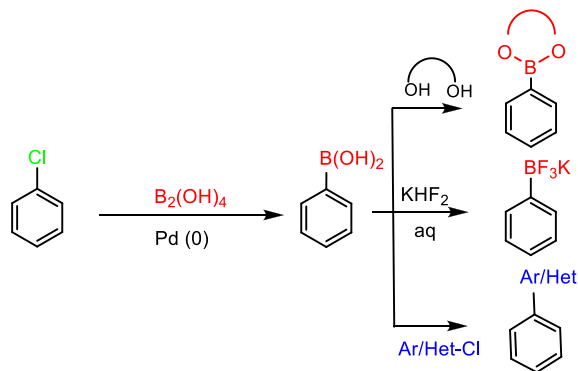
### Boronic Acid Synthesis from Aryl and Heteroaryl Electrophiles<sup>1</sup>



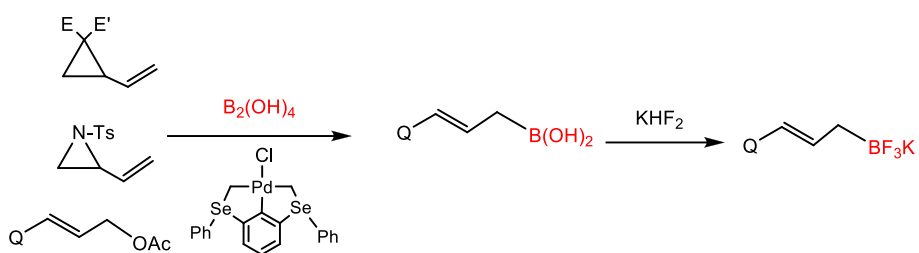
### $\beta$ -Boration of $\alpha,\beta$ -unsaturated Carbonyl Compounds<sup>2</sup>



### Palladium Catalyzed Boronic Acid Synthesis from Aryl Chlorides<sup>3</sup>



### Vinyl Substitution with Tetrahydroxydiboron<sup>5</sup>



**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. **Tetrahydroxydiborane** is manufactured, shipped according to standard practices, and intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

**Warranty and Disclaimer:** Frontier Scientific, Inc. warrants the product conforms to the specifications stated herein. In the event of nonconformity, Frontier will replace products or refund purchase price, at its sole option, and Frontier shall not be responsible for any other loss or damage, whether known or foreseeable to Frontier. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Frontier assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.

