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For research use only Not intended or approved for diagnostic or therapeutic use.

Product Name: Tetrahydroxydiboron

Catalog Number: T13348



Sizes Available: 50 g, 100 g, 250 g, 500 g and larger sizes available

Molecular weight: 89.65 g/mol

Molecular Formula: H₄B₂O₄

CAS Number: 13675-18-8

Storage: Store at 2-8 C°, under dry conditions.

Synonyms: Tetrahydroxydiboron, hypodiboric acid, 13675-18-8, tetrahydroxydiborane, Hypoboric Acid, (dihydroxyboranyl)boronic acid, Diboron tetrahydroxide

Uses: Synthesis of boronic acids, Reducing agent, Organic Synthesis Reagent

Tetrahydroxydiboron is a synthetic fine chemical useful in the synthesis of pharmaceuticals and fine organic chemicals.

Selected Uses and Synthesis References:

Cui, Qiang, Djamaladdin G. Musaev, and Keiji. Morokuma. Why Do Pt(PR3)2 Complexes Catalyze the Alkyne Diboration Reaction, but Their Palladium Analogs Do Not? A Density Functional Study. *Organometallics* 17, no. (1998): 742–51. <u>https://doi.org/10.1021/OM970277G</u>.

Feng, Zhang, Qiao-Qiao Min, Xia-Ping Fu, Lun An, and Xingang. Zhang. Chlorodifluoromethane-Triggered Formation of Difluoromethylated Arenes Catalysed by Palladium. *Nature Chemistry* 9, no. (2017): 918–23. <u>https://doi.org/10.1038/nchem.2746</u>.

Hu, Dawei, Linghua Wang, and Pengfei. Li. Decarboxylative Borylation of Aliphatic Esters under Visible-Light Photoredox Conditions. *Organic Letters* 19, no. (2017): 2770–73. <u>https://doi.org/10.1021/acs.orglett.7b01181</u>.

Medina, Dana D., Veronika Werner, Florian Auras, Raphael Tautz, Mirjam Dogru, Joerg Schuster, Stephanie Linke, et al. Oriented Thin Films of a Benzodithiophene Covalent Organic Framework. ACS Nano 8, no. (2014): 4042–52. <u>https://doi.org/10.1021/nn5000223</u>.

Mfuh, Adelphe M., John D. Doyle, Bhuwan Chhetri, Hadi D. Arman, and Oleg V. Larionov. Scalable, Metal- and Additive-Free, Photoinduced Borylation of Haloarenes and Quaternary Arylammonium Salts. *Journal of the American Chemical Society* 138, no. (2016): 2985–88. https://doi.org/10.1021/jacs.6b01376.

Molander, Gary A., Sarah L. J. Trice, and Spencer D. Dreher. Palladium-Catalyzed, Direct Boronic Acid Synthesis from Aryl Chlorides: A Simplified Route to Diverse Boronate Ester Derivatives. *Journal of the American Chemical Society* 132, no. (2010): 17701–3. https://doi.org/10.1021/ja1089759.

Molander, Gary A., Sarah L. J. Trice, Steven M. Kennedy, Spencer D. Dreher, and Matthew T. Tudge. Scope of the Palladium-Catalyzed Aryl Borylation Utilizing Bis-Boronic Acid. *Journal of the American Chemical Society* 134, no. (2012): 11667–73. <u>https://doi.org/10.1021/ja303181m</u>.

Olsson, Vilhelm J., Sara Sebelius, Nicklas Selander, and Kalman J. Szabo. Direct Boronation of Allyl Alcohols with Diboronic Acid Using Palladium Pincer-Complex Catalysis. A Remarkably Facile Allylic Displacement of the Hydroxy Group under Mild Reaction Conditions. *Journal of the American Chemical Society* 128, no. (2006): 4588–89. <u>https://doi.org/10.1021/ja060468n</u>.

Sebelius, Sara, Vilhelm J. Olsson, and Kalman J. Szabo. Palladium Pincer Complex Catalyzed Substitution of Vinyl Cyclopropanes, Vinyl Aziridines, and Allyl Acetates with Tetrahydroxydiboron. An Efficient Route to Functionalized Allylboronic Acids and Potassium Trifluoro(Allyl)Borates. *Journal of the American Chemical Society* 127, no. (2005): 10478–79. <u>https://doi.org/10.1021/ja052885q</u>.

Selander, Nicklas, Andreas Kipke, Sara Sebelius, and Kalman J. Szabo. Petasis Borono-Mannich Reaction and Allylation of Carbonyl Compounds via Transient Allyl Boronates Generated by Palladium-Catalyzed Substitution of Allyl Alcohols. An Efficient One-Pot Route to Stereodefined α-Amino Acids and Homoallyl Alcohols. *Journal of the American Chemical Society* 129, no. (2007): 13723–31. https://doi.org/10.1021/ja074917a.

Hazardous Properties and Cautions: The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. **Tetrahydroxydiboron** 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.

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