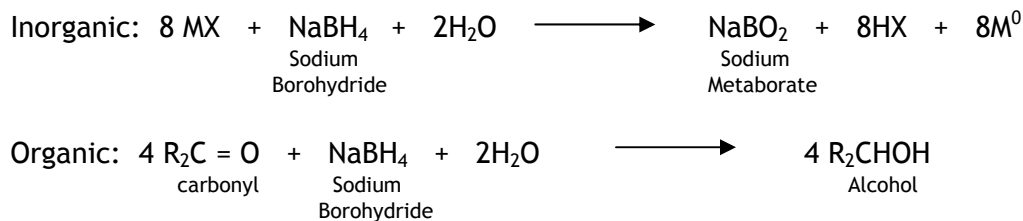


Product Information Bulletin
BoroSpec 1240[®]
Sodium Borohydride Solution

BoroSpec 1240 solution is a stable aqueous solution containing 12% by weight of sodium borohydride (NaBH₄) and 40% by weight of sodium hydroxide (NaOH). The product has proven to be selective, effective and cost efficient as a reducing agent in the synthesis of many intermediates used in the manufacture of pharmaceutical, agricultural and fine chemical products. **BoroSpec 1240 solution** is also effective in the preparation and recovery of many metal catalysts such as nickel.

Applications

BoroSpec 1240 solution is recommended in reactions where small amounts of caustic and water are acceptable. Under ideal reaction conditions, one mole (37.8g) of NaBH₄ will reduce four moles of an aldehyde or ketone to the corresponding alcohol, or provide 8 electrons for reduction of metal ions. The following reactions define the typical reduction of inorganic and organic compounds with NaBH₄ solution where M = Metal and X = Anion:



Thus 37.8 lbs of NaBH₄ (315 lbs of solution) will theoretically reduce 176 lbs of acetaldehyde to ethanol or 235 lbs. of nickel ion to free nickel metal. Typically under actual reaction conditions, the use level of **BoroSpec 1240 solution** will be greater than the stoichiometric level due to losses from side reactions such as hydrolysis. Theoretical levels of NaBH₄ should only be used as a guideline. Precise **BoroSpec 1240 solution** requirements may vary depending on the actual reduction conditions. Temperature, pH, time of reaction and possible side reactions with other species present, can affect the efficiency of the reaction. Therefore the optimum use level needs to be derived experimentally for each specific application.

Physical Properties

Sodium Borohydride		12 ± 0.2%
Sodium Hydroxide		40 ± 2.0%
Freezing Point		13 °C (55 °F)
pH		14.0+
Density	@ 23°C	1.4 gm/cc
	@ 73°F	11.7 lbs/gal.

Storage and Handling

BoroSpec 1240 solution is extremely stable, undergoing minimal decomposition during long term storage, and should be stored and handled following standard procedures for caustic soda (sodium hydroxide) solution. Contact with aluminum and other materials, which react with sodium hydroxide solutions, should be prevented. Contact with acids or acidic materials and extreme dilution should be prevented, as hydrogen gas may be released. Ventilate spill areas and flush with large quantities of water, per Material Safety Data Sheet instructions.

Shipping Information

BoroSpec 1240 solution is available for shipment in 5 gallon. pails, 55 gallon plastic drums, 275 gallon tote bins, and 4,000 gallon tank trucks. Other packaging is also available to meet specific customer requirements.

Technical Assistance

Customer technical support and assistance for all aspects of usage including lab tests, plant evaluations, product handling & storage and product safety are provided by Montgomery Chemicals.

Contact Montgomery Chemicals for complete product information, including suggested safety, handling, and storage procedures, transportation designations, and Material Safety Data Sheets. The material contained herein is believed to be accurate; however no warranty or guarantee is made as to accuracy or completeness. Nothing contained herein is to be construed as permission to infringe on any patent or license. Determination as to suitability of this product for a particular application is solely the responsibility of the user.

Montgomery Chemicals LLC

901 Conshohocken Road, Conshohocken, PA 19428
Phone 706-467-9106 Fax 706-467-3197 Email: clumsden@montchem.com

Revised: 10/26/2009