

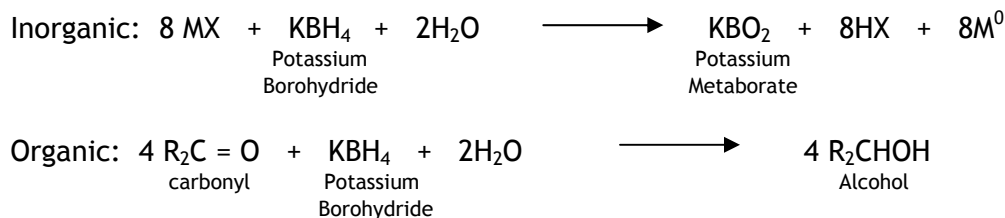
## Product Information Bulletin

### BoroSpec K<sup>®</sup> Potassium Borohydride Powder

**BoroSpec K Powder** is a 96% powder solid of Potassium Borohydride (KBH<sub>4</sub>). The potassium form of borohydride is typically used in cases where sodium is not desired or for other solubility reasons. The product has proven selective, effective, and cost efficient as a reducing agent in the synthesis of many fine chemical intermediates used in the manufacture of several pharmaceutical and agricultural products.

#### Applications

**BoroSpec K Powder** is soluble in water and exhibits selective reducing capabilities in both organic and inorganic chemical systems. Under ideal reaction conditions, one mole (53.94g) of KBH<sub>4</sub> 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 KBH<sub>4</sub> solution where M = Metal and X = Anion:



Thus 53.9 lbs. of KBH<sub>4</sub> 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 K powder** will be greater than the stoichiometric level due to losses from side reactions such as hydrolysis. Theoretical levels of KBH<sub>4</sub> should only be used as a guideline. Precise **BoroSpec K powder** requirements may vary depending on the actual reduction conditions. Temperature, pH, reaction time, 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

Molecular Weight	53.94
Form	White crystalline solid
Melting Point	Decomposes above 400 deg C without melting
Purity	96% minimum

## Storage and Handling

**BoroSpec K powder** is extremely stable, undergoing minimal decomposition during long term storage in dry air or sealed conditions. The product should be stored and handled following standard procedures for other flammable hygroscopic materials. Protective rubber gloves, clothing and safety goggles should always be worn when handling BoroSpec products. 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 K powder** is available for shipment in 10 kg PE bags shipped in 50 kg open-head steel drums. 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](mailto:clumsden@montchem.com)