

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **BoroSpec®** Sodium Borohydride Granular

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2. HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Corrosive to metals (Category 1), H290
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Dermal (Category 4), H312
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318

GHS Label Elements

Pictograms



Signal Word: **Danger**

Hazard Statements:

H260 In contact with water releases flammable gases which may ignite spontaneously.

H290 May be corrosive to metals.

H302 + H312 Harmful if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

Precautionary Statements:

P264 Wash skin thoroughly after handling.

P270 Do not eat drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, and face protection.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301 + P330+ P331 IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair) take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 + P315 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
P363 Wash contaminated clothing before reuse.
P402 + P404 Store in a dry place. Store in a closed container.

<u>NFPA Hazards</u>	<u>Ratings</u>
Health (Blue)	3
Flammability (Red)	3
Reactivity (Yellow)	2
Special Precautions (White)	W



Ratings 0 to 4, where 4 is most severe.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>Formula</u>	<u>% by weight</u>	<u>CAS #</u>
Sodium borohydride	NaBH ₄	95 - 100%	16940-66-2

4. FIRST AID MEASURES

SKIN CONTACT: Remove contaminated clothing and shoes. Immediately flush affected skin with large amount of water. Seek qualified medical attention if necessary.

EYE CONTACT: Immediately flush eye(s) with large amount of clean water. Use emergency eyewash facilities if possible. Seek qualified medical attention immediately. Continue rinsing eyes during transport to hospital.

INHALATION (Breathing): Move to fresh air. If not breathing give artificial respiration. Seek medical attention if any abnormal sensations are experienced.

INGESTION (Swallowing): Seek medical help immediately. Rinse mouth well with clean water. Drink large quantity of water if possible. Do not induce vomiting unless directed to do so by qualified medical personnel. Never give anything by mouth to an unconscious person.

PHYSICIAN'S NOTICE: This material is corrosive upon contact with moisture or water, and can cause tissue damage like all corrosive materials. There is danger of further damage if lavage is performed. No attempt should be made to neutralize this material with acidic materials.

5. FIRE FIGHTING MEASURES

FLASH POINT: Flammable

EXPLOSIVE LIMITS: Not applicable

DECOMPOSITION PRODUCTS: Contact with oxidizing agents, acidic materials, excessive heating, and dilution with water will generate flammable hydrogen gas. Violent reactions will occur with oxidizing agents and acidic materials. Decomposition product: hydrogen gas.

FIRE AND EXPLOSION HAZARDS: Material is combustible. It can burn vigorously with intense heat. Contact with oxidizing agents, acidic materials, excessive heating, and dilution with water will generate flammable hydrogen gas. Shut off all ignition sources if any; no smoking, flares, or flames in the area.

FIRE FIGHTER'S NOTICE: Fire fighters and other personnel who may be exposed to this material in a fire should be equipped with NIOSH approved positive pressure self contained breathing apparatus (SCBA), and full protective clothing, such as eye protection, and rubber protective suits, boots, and gloves.

Fire extinguishing media:

Compatible: Dry chemical
 Limestone powder
 Dry sand
 Dry sodium carbonate

Incompatible: Water
 Carbon dioxide (CO₂)

Note: Contact with moisture or water will cause the material to hydrolyze and liberate hydrogen gas.

6. ACCIDENTAL RELEASE MEASURES

EVACUATION / PERSONNEL PRECAUTIONS: Evacuate area around spill, and keep personnel away from contact with spilled and airborne material. Remove all sources of ignition, as flammable hydrogen gas may be present if contact is made with water or acidic materials. Never let oxidizing agents come into contact with this material. Response personnel should wear proper personal protective equipment such as rubber gloves, eye protection, rubber apron, or other approved protective clothing. A NIOSH approved respirator should be worn when handling this material.

CONTAINMENT / DISPOSAL: Sweep or shovel spills into suitable containers and dispose of in accordance with applicable local, state and federal regulations. Do not let the material come into contact with water, acidic material, or any other incompatible liquids, as flammable hydrogen gas will be generated from the hydrolysis reaction.

CLEAN UP / PERSONAL PROTECTIVE EQUIPMENT: Wash any equipment, clothing etc. which has come in contact with the material with water and soap or other cleaning materials. This material is corrosive. Avoid skin contact.

7. HANDLING AND STORAGE

STORAGE: Store in cool, dry, and well-ventilated area. Keep away from acidic materials, oxidizing agents, hot surfaces, and ignition sources. Keep material in original steel drums, and do not transfer material to incompatible glass or aluminum containers. No source of ignition should be allowed in the area. A No-Smoking sign should be in plain view and visible in the area, along with any other safety warning signs required per other applicable local, state and federal regulations,

HANDLING: Use rubber gloves, eye protection, rubber apron, or other approved protective clothing when handling. A NIOSH approved respirator should be worn when handling this material. Wash all contaminated clothing and equipment thoroughly.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS: Not established.

VENTILATION: Use adequate exhaust ventilation to keep dust levels as low as possible.

EYE PROTECTION: Wear appropriate goggles, face shield, or other eye protection when handling.

SKIN PROTECTION: Use chemical resistant gloves, apron, or other impervious protective clothing.

HAND PROTECTION: Wear appropriate chemical resistant gloves. Avoid exposed skin surface or getting powder/dust inside gloves. Wash hands thoroughly after handling with soap and water.

RESPIRATORY PROTECTION: Do not breathe in any dusts or mists. A NIOSH approved respirator should be worn when handling this material. If the airborne concentration exceeds the capacity of the respirator, a positive pressure self-contained breathing apparatus (SCBA) may be necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White crystalline powder/granules
Physical state:	Solid
Odor:	None to slight amine odor
pH:	N/A
Solubility in water:	Soluble
Flash point:	Flammable
Melting point:	~400 °C (~752 °F)

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal storage and usage conditions. Polymerization: No.
Decomposition product: hydrogen gas.

INCOMPATIBILITY WITH OTHER MATERIALS: Incompatible with acidic materials, oxidizing agents, chemically active metals (i.e.: nickel, cobalt, iron, copper, etc.), amphoteric metals (i.e.: copper, zinc, aluminum, etc.), and water. Will react and release flammable hydrogen gas if contacted with these materials.

11. TOXICOLOGICAL INFORMATION

Oral LD50	Rat 100-200 mg/kg
Dermal LD50	Rabbit 200-300 mg/kg

Can cause severe damage to skin, eyes, and respiratory system organs.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

DISPOSAL: This material meets RCRA's definitions for corrosivity and reactivity. Federal, state and local regulations may apply to disposal of this material, and/or containers which have been used to store or ship this material. Hazardous waste numbers: D001, D003. Before disposing of any amount of this material, contact applicable regulatory authorities.

EMPTY CONTAINERS: Empty steel drums may contain residues of this material, and should be considered hazardous until completely emptied and properly cleaned. Do not reuse empty plastics bags. They should be disposed of according to applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (US)

Proper shipping name: Sodium borohydride
UN number: 1426
Class: 4.3
Packing group: I
Label: Dangerous when wet

IMO/IMDG (International)

Proper shipping name: Sodium borohydride
UN number: 1426
Class: 4.3
Packing group: I

15. REGULATORY INFORMATION

Federal This material is considered hazardous under OSHA Hazard Communication Standard 29 CFR 1910.1200.

SARA Title III

Sec. 311/312 - Hazard Categories

Fire hazard:	Yes
Sudden release of pressure hazard:	No
Reactivity hazard:	Yes
Immediate (acute) health hazard :	Yes
Delayed (chronic) health hazard :	No

Ozone depleting chemicals: No regulated ingredients

SARA Sec. 302 Extremely Hazardous Materials - No regulated ingredients

SARA Sec. 313 Extremely Hazardous Materials - No regulated ingredients

TSCA (US Toxic Substances Control Act): This material is in compliance with the inventory listing requirements.

PA and NJ Right To Know Sodium borohydride 16940-66-2 95 - 100%

CA Proposition 65 No regulated ingredients

CONEG No data available.

CANADA This material is a “Controlled Product” under the Canadian Workplace Hazardous Materials Information System (Canadian WHMIS) Class D Div. 1 Subdiv. A, Class D Div. 2 Subdiv. B, and Class E Div. 0

CEPA-NPRI - No regulated ingredients

Canadian Chemical Inventory - Domestic Substances List - Listed

16. OTHER INFORMATION

USER’S RESPONSIBILITY: As with many chemicals, this material should be considered by the user, as well as any other individuals coming in contact with this material, as hazardous. The user of this material assumes all responsibility to provide a safe and properly equipped workplace in which this material can be used properly, and is responsible for determining whether any use of or procedure involving this material, or any equipment used to store, transport, or process this material, is safe. The user should relay safety and health hazard information pertaining to this material to any individuals or organizations who might be exposed to this material. Nothing contained herein is to be construed as permission to infringe on any patent or license.

DISCLAIMER OF LIABILITY: The information contained in this Material Safety Data Sheet is to the best of the manufacturer’s knowledge and belief accurate. Since the conditions of transport, use, and handling of this material are not within the manufacturer’s control, the manufacturer assumes no liability for damages incurred in the transport, use, or handling of this material, and makes no guarantee as to the results of the use of this material. While the information contained in this document is believed to be valid and complete, health hazards other than those mentioned herein may exist. The determination as to the use of this material for a specific application or in a specific manner is made solely at the discretion of the user. No representations, express or implied, of fitness for a particular purpose, merchantability, or any other nature are made herein. It is the responsibility of the user to use this material in conformance with all applicable federal, state, and local regulatory agency regulations.