

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **BoroMet 1240[®]** solution

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2. HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

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
Acute aquatic toxicity (Category 3), H402

GHS Label Elements

Pictograms



Signal Word: **Danger**

Hazard Statements:

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.
H402 Harmful to aquatic life.

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 + P310 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.

P390 Absorb spillage to prevent material damage.

<u>NFPA Hazards</u>	<u>Ratings</u>
Health (Blue)	3
Flammability (Red)	0
Reactivity (Yellow)	1
Special Precautions (White)	COR (corrosive)



Ratings 0 to 4, where 4 is the most severe.

THIS MATERIAL IS HIGHLY CORROSIVE DUE TO THE CAUSTIC CONTENT (SODIUM HYDROXIDE).

IT CAUSES SEVERE BURNS OR OTHER DAMAGE TO SKIN, EYES, RESPIRATORY AND DIGESTIVE SYSTEM ORGANS. DO NOT SWALLOW. DO NOT INHALE VAPORS OR MISTS. IT MAY LIBERATE FLAMMABLE HYDROGEN GAS IF CONTACTED WITH ACIDS, OR CERTAIN METALS (SUCH AS ALUMINUM), OR IF DILUTED WITH LARGE QUANTITIES OF WATER.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>Formula</u>	<u>% by weight</u>	<u>CAS #</u>
Sodium borohydride	NaBH ₄	5 - 15%	16940-66-2
Sodium hydroxide	NaOH	20 - 45%	1310-73-2
Water	H ₂ O	Balance	

4. FIRST AID MEASURES

SKIN CONTACT: Remove contaminated clothing and shoes. Immediately flush affected skin with large amount of clean water. Use emergency shower if possible. Seek qualified medical attention immediately.

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, and charcoal slurry if possible. 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 highly alkaline, and can cause severe tissue damage. 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, EXPLOSIVE LIMITS, and AUTO-IGNITION TEMPERATURE: This material does not burn or support combustion.

DECOMPOSITION PRODUCTS: Contact with oxidizing agents, certain metals (such as aluminum), acidic materials, excessive heating, and dilution with large quantities of water can result in flammable hydrogen gas being released. Burning produces irritating vapors. (See **INHALATION** information above).

FIRE AND EXPLOSION HAZARDS: Contact with oxidizing agents, certain metals (such as aluminum), acidic materials, excessive heating, and dilution with large quantities of water can result in flammable hydrogen gas being released.

EXTINGUISHING MEDIA: This material does not burn or support combustion.

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.

6. ACCIDENTAL RELEASE MEASURES

EVACUATION / PERSONNEL PRECAUTIONS: Evacuate area around spill, and keep unprotected personnel from contact with spilled liquid and airborne material if present. Remove all sources of ignition, as flammable hydrogen gas may be present with dilution of the material or if contact is made with acidic materials. Response personnel should wear proper personal protective equipment such as eye protection, a NIOSH approved respirator, rubber suits, gloves, and boots.

CONTAINMENT / DISPOSAL: Stop discharge as soon as practical. Contain spilled material using dikes or barriers. Material may be absorbed with dry sodium carbonate (soda ash), sand, or other inert absorbent materials. Place all collected liquid, contaminated absorbent and absorbed material in closed authorized containers and dispose of in accordance with applicable local, state and federal regulations.

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

REPORTING: Spills in the US of this material which exceed 1,000 lbs. must be reported to the National Response Center (800) 424-8802, plus the appropriate state and local emergency response agencies.

7. HANDLING AND STORAGE

STORAGE: Store in cool, dry well ventilated area, at temperatures between 65°F and 100°F (18°C and 38°C). Do not transfer to or store in aluminum, glass, or glass lined containers. Protect from freezing. Allow $\pm 10\%$ of container free volume for vapor space. Containers should be periodically checked for pressure buildup. Keep away from acidic materials, oxidizing agents, hot surfaces and ignition sources.

PERSONAL HYGIENE: Use rubber gloves, eye protection, rubber apron, or other approved protective clothing when handling. Wash all contaminated clothing and equipment thoroughly. Wash hands thoroughly after handling, particularly before eating, smoking, drinking or using rest room facilities.

EMPTY CONTAINERS: Empty containers may contain residues of this material, and should be considered hazardous until completely emptied and properly cleaned. Do not reuse empty container for any purpose until after it has been cleaned and inspected by appropriately trained personnel.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

ACGIH – TLV	(Sodium hydroxide)	2 mg/M ³
OSHA – PEL	(Sodium hydroxide)	2 mg/M ³

VENTILATION: Exhaust ventilation is recommended when vapors, dusts or mists in excess of established airborne limits (TLVs or PELs) may be exceeded.

EYE PROTECTION: Wear appropriate goggles, face shield, or other eye protection when handling. Eyewash fountains or other eyewash facilities should be readily available.

SKIN PROTECTION: Use rubber gloves, rubber apron, or other approved protective clothing when handling. Do not use cloth, leather or other absorbent gloves, as material will soak into them and cause skin contact. Emergency personnel showers should be readily available.

RESPIRATORY PROTECTION: Do not breathe dusts, aerosols or mists containing this material. Wear NIOSH/MSHA approved masks or other approved respiratory protection equipment. High airborne concentrations of this material may require the use of positive pressure self contained breathing apparatus (SCBA). Respiratory protection equipment and programs must be in compliance with 29 CFR 1910.134.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to slight yellow tint	VOC Material:	Not applicable
Physical state:	Liquid	% Non-volatiles	Approx. 25 - 60%
Odor:	None to mild hydrocarbon	Solubility in water:	Completely soluble
pH:	14+	Boiling point:	~270°F (~132°C)
Specific gravity:	1.4		

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal usage conditions. Refer to the information contained elsewhere in this document for conditions to avoid.

INCOMPATIBILITY WITH OTHER MATERIALS: Incompatible with acidic materials, oxidizing agents, chemically active metals (e.g. nickel, cobalt, iron, copper, etc.), amphoteric metals (e.g. copper, zinc, aluminum, etc.), large volumes of water. May react and/or release flammable hydrogen gas if contacted with any of these materials.

11. TOXICOLOGICAL INFORMATION

Oral LD50	Rat 500-1000 mg/kg
Dermal LD50	Rabbit 100-500 mg/kg

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

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

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. Before disposing of any amount of this material, contact applicable regulatory authorities.

14. TRANSPORT INFORMATION

DOT (US)

Proper shipping name: Sodium borohydride and sodium hydroxide solution
UN number: 3320
Class: 8
Packing group: II
Label: Corrosive
Reportable Quantity (RQ): 1,000 lbs (sodium hydroxide)

IMO/IMDG (International)

Proper shipping name: Sodium borohydride and sodium hydroxide solution
UN number: 3320
Class: 8
Packing group: II

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 - No
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

CHEMICAL LISTING - US Toxic Substances Control Act:
Chemical components in this product are listed in Section 8 (b) Chemical Substance Inventory List (40 CFR 710)

PA and NJ Right To Know Sodium borohydride 16940-66-2 5 – 15%
Sodium hydroxide 1310-73-2 20 – 45%
(Environmental hazard)
Water 7732-18-5 Balance

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, expressed 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.