

## SAFETY DATA SHEET

Creation Date 29-January-2010

Revision Date 17-January-2018

Revision Number 4

### 1. Identification

**Product Name** Sodium borohydride

**Cat No. :** S678-10; S678-25

**CAS-No** 16940-66-2  
**Synonyms** SBH; Sodium tetrahydroborate (Powder)

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Not for food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

##### **Importer/Distributor**

Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

##### **Manufacturer**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

<b>Substances/mixtures which, in contact with water, emit flammable gases</b>	Category 1
<b>Acute oral toxicity</b>	Category 3
<b>Skin Corrosion/irritation</b>	Category 1 C
<b>Serious Eye Damage/Eye Irritation</b>	Category 1
<b>Reproductive Toxicity</b>	Category 1B
<b>Specific target organ toxicity - (repeated exposure)</b>	Category 2
Target Organs - Lungs.	
<b>Physical Hazards Not Otherwise Classified</b>	Category 1
Reacts violently with water	

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

In contact with water releases flammable gases which may ignite spontaneously

Toxic if swallowed  
 Causes severe skin burns and eye damage  
 May damage fertility. May damage the unborn child  
 Reacts violently with water



### Precautionary Statements

#### Prevention

Do not allow contact with water  
 Keep container tightly closed  
 Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Handle under inert gas. Protect from moisture  
 Do not breathe dust/fumes/gas/mist/vapours/spray  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Use only outdoors or in a well-ventilated area  
 Wear protective gloves/protective clothing/eye protection/face protection

#### Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing  
 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/doctor  
 Rinse mouth  
 Do NOT induce vomiting  
 Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages  
 Wash contaminated clothing before reuse  
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed  
 Store in a dry place. Store in a closed container

#### Disposal

Dispose of contents/container to an approved waste disposal plant

## 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Sodium borohydride	16940-66-2	>95

## 4. First-aid measures

### General Advice

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

<b>Inhalation</b>	Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Most important symptoms/effects</b>	Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

**Suitable Extinguishing Media** CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

**Unsuitable Extinguishing Media** DO NOT USE WATER

**Flash Point Method -** No information available  
No information available

**Autoignition Temperature** 220 °C / 428 °F

**Explosion Limits**  
**Upper** No data available  
**Lower** 3.02 vol %

**Oxidizing Properties** Not oxidising

**Sensitivity to Mechanical Impact** No information available

**Sensitivity to Static Discharge** No information available

#### Specific Hazards Arising from the Chemical

Corrosive Material. Reacts violently with water. Contact with water liberates extremely flammable gases. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

#### Hazardous Combustion Products

Oxides of boron Sodium oxides Hydrogen Thermal decomposition can lead to release of irritating gases and vapors

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### NFPA

Health	Flammability	Instability	Physical hazards
3	3	2	W

### 6. Accidental release measures

**Personal Precautions** Use personal protective equipment. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

**Environmental Precautions** Avoid release to the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up** Do not expose spill to water. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

### 7. Handling and storage

**Handling** Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe vapors/dust. Do not allow contact with water.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from water. Do not store in aluminum containers.

## 8. Exposure controls / personal protection

**Exposure Guidelines** This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Goggles  
**Hand Protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Natural rubber	See manufacturers	-	Splash protection only
Nitrile rubber	recommendations		
Neoprene			
PVC			

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Recommended Filter type:** Particulates filter conforming to EN 143

When RPE is used a face piece Fit Test should be conducted

### Environmental exposure controls

No information available.

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Solid Powder
<b>Appearance</b>	White
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	approx 11 - 10 g/l aq. solution
<b>Melting Point/Range</b>	360 °C / 680 °F
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
Upper	No data available

Lower	3.02 vol %
Vapor Pressure	negligible
Vapor Density	Not applicable
Density	1.074
Specific Gravity	No information available
Bulk Density	powder: 400 kg/m <sup>3</sup> granules: 510 kg/m <sup>3</sup>
Solubility	Reacts violently with water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	220 °C / 428 °F
Decomposition Temperature	400 °C
Viscosity	Not applicable
Molecular Formula	H4 B Na
Molecular Weight	37.83

## 10. Stability and reactivity

<b>Reactive Hazard</b>	Yes
<b>Stability</b>	Water reactive. Hygroscopic.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Exposure to moist air or water. Exposure to moisture. Temperatures above 60°C.
<b>Incompatible Materials</b>	Strong oxidizing agents, Aldehydes, Ketones, Acids, Aluminium
<b>Hazardous Decomposition Products</b>	Oxides of boron, Sodium oxides, Hydrogen, Thermal decomposition can lead to release of irritating gases and vapors
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	Contact with water liberates extremely flammable gases.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium borohydride	57 mg/kg ( Rat )	>2000 mg/kg ( Rabbit )	Not listed

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Irritation</b>	Causes burns by all exposure routes
<b>Sensitization</b>	No information available
<b>Carcinogenicity</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium borohydride	16940-66-2	Not listed				

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

<b>STOT - single exposure</b>	None known
<b>STOT - repeated exposure</b>	Lungs
<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Reacts with water so no ecotoxicity data for the substance is available.

<b>Persistence and Degradability</b>	Persistence is unlikely based on information available.
<b>Bioaccumulation/ Accumulation</b>	No information available.
<b>Mobility</b>	Is not likely mobile in the environment.

## 13. Disposal considerations

<b>Waste Disposal Methods</b>	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
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## 14. Transport information

### DOT

<b>UN-No</b>	UN1426
<b>Proper Shipping Name</b>	SODIUM BOROHYDRIDE
<b>Hazard Class</b>	4.3
<b>Packing Group</b>	I

### TDG

<b>UN-No</b>	UN1426
<b>Proper Shipping Name</b>	SODIUM BOROHYDRIDE
<b>Hazard Class</b>	4.3
<b>Packing Group</b>	I

### IATA

<b>UN-No</b>	UN1426
<b>Proper Shipping Name</b>	SODIUM BOROHYDRIDE
<b>Hazard Class</b>	4.3
<b>Packing Group</b>	I

### IMDG/IMO

<b>UN-No</b>	UN1426
<b>Proper Shipping Name</b>	SODIUM BOROHYDRIDE
<b>Hazard Class</b>	4.3
<b>Packing Group</b>	I

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

### International Inventories

Component	DSL	NDSL	TSCA	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Sodium borohydride	X	-	X	241-004-4	-		X	X	X	X	X

**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

**16. Other information**

<b>Prepared By</b>	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
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<b>Revision Date</b>	17-January-2018
<b>Print Date</b>	17-January-2018
<b>Revision Summary</b>	This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**