

## Material Safety Data Sheet

Version 3.2

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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Sodium borohydride

Product Number : 198072

Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

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Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

## 2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Water Reactive, Toxic by ingestion, Toxic by skin absorption, Corrosive

## GHS Classification

Substances, which in contact with water, emit flammable gases (Category 1)

Acute toxicity, Dermal (Category 3)

Acute toxicity, Oral (Category 3)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

DangerDanger

Hazard statement(s)

H260

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

H301 + H311

Toxic if swallowed or in contact with skin

H314

Causes severe skin burns and eye damage.

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Precautionary statement(s)

P223

Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232

Handle under inert gas. Protect from moisture.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

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Handle under inert gas. Protect from moisture.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

P370 + P378

In case of fire: Use carbon dioxide for extinction.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P422

Store contents under inert gas.

#### HMIS Classification

Health hazard: 3

Flammability: 3

Physical hazards: 2

#### NFPA Rating

Health hazard: 3

Fire: 0

Reactivity Hazard: 2

Special hazard: W

#### Potential Health Effects

##### Inhalation

May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

##### Skin

Toxic if absorbed through skin. Causes skin burns.

##### Eyes

Causes eye burns.

##### Ingestion

Toxic if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula :  $H_4BNa$   
Molecular Weight : 37.83 g/mol

| Component                 |            | Concentration |
|---------------------------|------------|---------------|
| <b>Sodium borohydride</b> |            |               |
| CAS-No.                   | 16940-66-2 | -             |
| EC-No.                    | 241-004-4  | -             |

### 4. FIRST AID MEASURES

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 5. FIREFIGHTING MEASURES

#### Suitable extinguishing media

Dry powder Carbon dioxide (CO<sub>2</sub>)

### **Extinguishing media which shall not be used for safety reasons**

Water

### **Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

### **Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

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## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### **Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### **Methods and materials for containment and cleaning up**

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

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## **7. HANDLING AND STORAGE**

### **Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

### **Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage.

Air and moisture sensitive. Store under inert gas. Keep in a dry place.

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Contains no substances with occupational exposure limit values.

### **Personal protective equipment**

#### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### **Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### **Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### **Skin and body protection**

Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **Hygiene measures**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

|        |        |
|--------|--------|
| Form   | powder |
| Colour | white  |

### Safety data

|                                        |                                         |
|----------------------------------------|-----------------------------------------|
| pH                                     | no data available                       |
| Melting point/freezing point           | Melting point/range: ca.400 °C (752 °F) |
| Boiling point                          | no data available                       |
| Flash point                            | no data available                       |
| Ignition temperature                   | no data available                       |
| Autoignition temperature               | no data available                       |
| Lower explosion limit                  | 3.02 %(V)                               |
| Vapour pressure                        | no data available                       |
| Density                                | no data available                       |
| Water solubility                       | 55 g/l at 25 °C (77 °F) - soluble       |
| Partition coefficient: n-octanol/water | no data available                       |
| Relative vapour density                | no data available                       |
| Odour                                  | no data available                       |
| Odour Threshold                        | no data available                       |
| Evaporation rate                       | no data available                       |

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Reacts violently with water.

### Conditions to avoid

Exposure to moisture.

### Materials to avoid

Oxidizing agents, Chemically active metals, acids, Reacts violently with water.

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.  
Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

LD50 Oral - rat - 162 mg/kg

#### Inhalation LC50

no data available

#### Dermal LD50

LD50 Dermal - rabbit - 230 mg/kg

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

Skin - Human - Corrosive

**Serious eye damage/eye irritation**

Eyes - Human - Corrosive to eyes

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

|                   |                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b> | May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. |
| <b>Ingestion</b>  | Toxic if swallowed.                                                                                                             |
| <b>Skin</b>       | Toxic if absorbed through skin. Causes skin burns.                                                                              |
| <b>Eyes</b>       | Causes eye burns.                                                                                                               |

**Signs and Symptoms of Exposure**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: ED3325000

## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish                      mortality LC50 - Gambusia affinis (Mosquito fish) - 5,600 mg/l - 96 h

### Persistence and degradability

no data available

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### PBT and vPvB assessment

no data available

### Other adverse effects

no data available

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## 13. DISPOSAL CONSIDERATIONS

### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 1426    Class: 4.3                      Packing group: I  
Proper shipping name: Sodium borohydride  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 1426    Class: 4.3                      Packing group: I                      EMS-No: F-G, S-O  
Proper shipping name: SODIUM BOROHYDRIDE  
Marine pollutant: No

### IATA

UN number: 1426    Class: 4.3                      Packing group: I  
Proper shipping name: Sodium borohydride  
IATA Passenger: Not permitted for transport

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## 15. REGULATORY INFORMATION

### OSHA Hazards

Water Reactive, Toxic by ingestion, Toxic by skin absorption, Corrosive

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

Sodium borohydride

CAS-No.  
16940-66-2Revision Date  
2007-03-01**New Jersey Right To Know Components**

Sodium borohydride

CAS-No.  
16940-66-2Revision Date  
2007-03-01**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Further information**

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