

## Material Safety Data Sheet

Version 4.2  
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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Boric acid

Product Number : B7901  
Brand : Sigma

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

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
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

Target Organ Effect, Teratogen, Reproductive hazard

## Target Organs

Testes, Testes.

## GHS Classification

Acute toxicity, Oral (Category 5)  
Reproductive toxicity (Category 1B)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H303 May be harmful if swallowed.  
H360 May damage fertility or the unborn child.

Precautionary statement(s)

P201 Obtain special instructions before use.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

## HMIS Classification

Health hazard: 2  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 0

## NFPA Rating

Health hazard: 2  
Fire: 0

Reactivity Hazard: 0

## Potential Health Effects

Inhalation

Skin

Eyes

Ingestion

May be harmful if inhaled. May cause respiratory tract irritation.  
May be harmful if absorbed through skin. May cause skin irritation.  
May cause eye irritation.  
May be harmful if swallowed.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : H<sub>3</sub>BO<sub>3</sub>  
Molecular Weight : 61.83 g/mol

Component	Concentration
Boric acid	
CAS-No.	10043-35-3
EC-No.	233-139-2
Index-No.	005-007-00-2
Registration number	01-2119486683-25-XXXX

## 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

Wash off with soap and plenty of water. Consult a physician.

## In case of eye contact

Flush eyes with water as a precaution.

## If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## 5. FIREFIGHTING MEASURES

## Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

## 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. - Borane/boron oxides

## Further information

The product itself does not burn.

## 6. ACCIDENTAL RELEASE MEASURES

## Personal precautions

Use personal protective equipment. 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

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Moisture sensitive.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Boric acid	10043-35-3	STEL	6 mg/m3	USA, ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract irritation Not classifiable as a human carcinogen varies			
		TWA	2 mg/m3	USA, ACGIH Threshold Limit Values (TLV)
	Not classifiable as a human carcinogen			
		STEL	6 mg/m3	USA, ACGIH Threshold Limit Values (TLV)
	Not classifiable as a human carcinogen			
		TWA	2 mg/m3	USA, ACGIH Threshold Limit Values (TLV)
	Upper Respiratory Tract irritation Not classifiable as a human carcinogen varies			
		TWA	2 mg/m3	USA, ACGIH Threshold Limit Values (TLV)
	Upper Respiratory Tract irritation Not classifiable as a human carcinogen varies			
		STEL	6 mg/m3	USA, ACGIH Threshold Limit Values (TLV)
	Upper Respiratory Tract irritation Not classifiable as a human carcinogen varies			

**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**

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

Impervious 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**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of

workday.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form solid

Colour no data available

**Safety data**

pH 5,1 at 1.8 g/l at 25 °C (77 °F)

Melting point/freezing point Melting point/range: 160 °C (320 °F) - dec.

Boiling point 300 °C (572 °F)

Flash point no data available

Ignition temperature no data available

Autoignition temperature no data available

Lower explosion limit no data available

Upper explosion limit no data available

Vapour pressure 3.5 hPa (2.6 mmHg) at 20 °C (68 °F)

Density 1,440 g/cm3

Water solubility 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

**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

Exposure to moisture.

**Materials to avoid**

Potassium, Acid anhydrides

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Borane/boron oxides

Other decomposition products - no data available

**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 2,660 mg/kg

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**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.

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**

Presumed human reproductive toxicant

**Teratogenicity**

fetotoxicity

Presumed human reproductive toxicant

**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. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, and erythematous lesions on the skin and mucous membranes. Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions, and coma. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams.

**Synergistic effects**

no data available

**Additional Information**

RTECS: ED4550000

**12. ECOLOGICAL INFORMATION**

**Toxicity**

Toxicity to fish	LC50 - <i>Ptychocheilus lucius</i> - 279 mg/l - 96 h
	LC0 - <i>Lepomis macrochirus</i> (Bluegill) - > 1,021 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - <i>Daphnia magna</i> (Water flea) - 53.2 mg/l - 21 d
	EC50 - <i>Daphnia magna</i> (Water flea) - 133 mg/l - 48 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

**13. DISPOSAL CONSIDERATIONS**

**Product**

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.

**14. TRANSPORT INFORMATION**

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

**15. REGULATORY INFORMATION**

**OSHA Hazards**

Target Organ Effect, Teratogen, Reproductive hazard

**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**

Chronic Health Hazard

**Massachusetts Right To Know Components**

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

**Pennsylvania Right To Know Components**

Boric acid

CAS-No.  
10043-35-3

Revision Date  
2009-07-17

**New Jersey Right To Know Components**

Boric acid

CAS-No.  
10043-35-3

Revision Date  
2009-07-17

**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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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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