# SAFETY DATA SHEET according to the OSHA Hazard Communication Standard

Version 6.11
Revision Date 07/10/2026
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Boron Standard for AAS

Product Number : 40591
Brand : Sigma-Aldrich

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

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

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Reproductive toxicity : Category 1B



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**Other hazards**

None known.

**GHS label elements**

Hazard pictograms :

Signal word : Danger

Hazard statements : H360 May damage fertility or the unborn child.

Precautionary statements :

**Prevention:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

CAS-No. : Not Assigned

**Components**

| Chemical name | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|---|---|---|---|
| boric acid | 10043-35-3* | >= 0.1 - < 1 | - |

* Indicates that the identifier is a CAS No.
Actual concentration is withheld as a trade secret

## SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in



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attendance.

| | | |
|---|---|---|
| If inhaled | : | After inhalation: fresh air. Call in physician. |
| In case of skin contact | : | In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician. |
| In case of eye contact | : | After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses. |
| If swallowed | : | After swallowing: immediately make victim drink water (two glasses at most). Consult a physician. |
| Most important symptoms and effects, both acute and delayed | : | The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 |
| Protection of first-aiders | : | For personal protection see section 8. |
| Notes to physician | : | No data available |

## SECTION 5. FIREFIGHTING MEASURES

| | | |
|---|---|---|
| Suitable extinguishing media | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : | For this substance/mixture no limitations of extinguishing agents are given. |
| Specific hazards during fire fighting | : | Not combustible.<br><br>Ambient fire may liberate hazardous vapours. |
| Hazardous combustion products | : | Borane/boron oxides<br><br>Nature of decomposition products not known. |
| Specific extinguishing methods | : | No data available |
| Further information | : | none |



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| | | |
|---|---|---|
| Special protective equipment for fire-fighters | : | Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing. |

## SECTION 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Advice for non-emergency personnel:<br>Do not breathe vapours, aerosols.<br>Avoid substance contact.<br>Ensure adequate ventilation.<br>Evacuate the danger area, observe emergency procedures, consult an expert.<br>Advice for emergency responders:<br>For personal protection see section 8. |
| Environmental precautions | : | No special precautionary measures necessary. |
| Methods and materials for containment and cleaning up | : | Observe possible material restrictions (see sections 7 and 10).<br>Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area. |

## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

| | | |
|---|---|---|
| Advice on safe handling | : | Work under hood. Do not inhale substance/mixture.<br>Avoid generation of vapours/aerosols. |
| Further information on storage conditions | : | Tightly closed.<br>Keep in a well-ventilated place.<br>Keep locked up or in an area accessible only to qualified or authorised persons. |
| Storage class | : | 6.1D, Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects |
| Recommended storage temperature | : | Recommended storage temperature see product label. |



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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ingredients with workplace control parameters**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| boric acid | 10043-35-3 | TWA (Inhalable particulate matter) | 2 mg/m3 (Borate) | ACGIH |
| | | STEL (Inhalable particulate matter) | 6 mg/m3 (Borate) | ACGIH |

**Engineering measures** : No data available

**Personal protective equipment**

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type ABEK

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Remarks : required

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

Skin and body protection : protective clothing

Hygiene measures : Immediately change contaminated clothing. Apply



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preventive skin protection. Wash hands and face after working with substance.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | liquid |
| Colour | : | No data available |
| Odour | : | No data available |
| Odour Threshold | : | No data available |
| pH | : | No data available |
| Melting point | : | No data available |
| Boiling point/boiling range | : | No data available |
| Flash point | : | Not applicable |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | No data available |
| Flammability (liquids) | : | The product is not flammable. |
| Burning rate | : | No data available |
| Self-ignition | : | Not applicable |
| Upper explosion limit / Upper flammability limit | : | Not applicable |
| Lower explosion limit / Lower flammability limit | : | Not applicable |
| Vapour pressure | : | No data available |
| Relative vapour density | : | No data available |
| Relative density | : | No data available |
| Density | : | No data available |
| Solubility(ies) | | |
| Water solubility | : | soluble (68 °F / 20 °C) |
| Partition coefficient: n-octanol/water | : | No data available |



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| | | |
|---|---|---|
| Autoignition temperature | : | Not applicable |
| Decomposition temperature | : | No data available |
| Viscosity, dynamic | : | No data available |
| Viscosity, kinematic | : | No data available |
| Flow time | : | No data available |
| Explosive properties | : | Not classified as explosive. |
| Oxidizing properties | : | none |
| Particle characteristics<br>Particle size | : | No data available |

## SECTION 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | No data available |
| Chemical stability | : | The product is chemically stable under standard ambient conditions (room temperature) . |
| Possibility of hazardous reactions | : | Violent reactions possible with:<br>The generally known reaction partners of water. |
| Conditions to avoid | : | no information available |
| Incompatible materials | : | Potassium<br>Acid anhydrides |
| Hazardous decomposition products | : | In the event of fire: see section 5 |

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

**Mixture**

**Acute toxicity**
Oral: No data available

Inhalation: No data available

Dermal: No data available

No data available

**Skin corrosion/irritation**
Remarks: No data available



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**Serious eye damage/eye irritation**
Remarks: 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 on OSHA's list of regulated carcinogens.

**Reproductive toxicity**
No data available
May harm the unborn child.
No data available
May impair fertility.

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

### 11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Other dangerous properties can not be excluded.

This substance should be handled with particular care.

**Components**

**boric acid**

**Acute toxicity**
LD50 Oral - Rat - male and female - 3,450 mg/kg
Remarks: (ECHA)
LC50 Inhalation - Rat - male and female - 4 h - > 2.12 mg/l - dust/mist
(OECD Test Guideline 403)
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
Remarks: (ECHA)

**Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation - 24 h



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Remarks: (ECHA)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation - 24 h
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Buehler Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Remarks: (ECHA)
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: Mutagenicity (mammal cell test):
Test system: Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
May damage fertility.
May damage the unborn child.

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**

**Aspiration hazard**
No data available

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Product:**

Toxicity to fish : Remarks: No data available



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**Components:**

**boric acid:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Pimephales promelas (fathead minnow)): 79.7 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: US-EPA |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 133 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Remarks: (ECOTOX Database) |
| Toxicity to algae/aquatic plants | : | EC50 (Pseudokirchneriella subcapitata (green algae)): 52.4 mg/l<br>Exposure time: 74.5 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 201<br>GLP: yes |

**Ecotoxicology Assessment**

| | | |
|---|---|---|
| Chronic aquatic toxicity | : | This product has no known ecotoxicological effects. |

**Persistence and degradability**

**Product:**

| | | |
|---|---|---|
| Biodegradability | : | Remarks: No data available |

**Components:**

**boric acid:**

| | | |
|---|---|---|
| Biodegradability | : | Remarks: The methods for determining biodegradability are not applicable to inorganic substances. |

**Bioaccumulative potential**

**Product:**

| | | |
|---|---|---|
| Bioaccumulation | : | Remarks: No data available |

**Components:**

**boric acid:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: -1.09 (72 °F / 22 °C)<br>pH: 7.5<br>Method: Regulation (EC) No. 440/2008, Annex, A.8<br>GLP: yes |



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Remarks: Bioaccumulation is not expected.

**Mobility in soil**

**Product:**

Stability in soil : Remarks: No data available

**Other adverse effects**

**Product:**

Additional ecological information : No data available

**Components:**

**boric acid:**

Additional ecological information : Discharge into the environment must be avoided.

**Endocrine disrupting properties**

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

## SECTION 14. TRANSPORT INFORMATION

**International Regulations**

**IATA-DGR**

Not regulated as a dangerous good

**IMDG-Code**

Not regulated as a dangerous good

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**National Regulations**

**49 CFR**

Not regulated as a dangerous good

Poison Inhalation Hazard : No

**Special precautions for user**



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| | | |
|---|---|---|
| Remarks | : | Not classified as dangerous in the meaning of transport regulations. |

## SECTION 15. REGULATORY INFORMATION

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

| | | |
|---|---|---|
| **SARA 311/312 Hazards** | : | No SARA Hazards |
| **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. |

**US State Regulations**

**Massachusetts Right To Know**

| | |
|---|---|
| water | 7732-18-5 |

**Maine Chemicals of High Concern**

| | |
|---|---|
| water | 7732-18-5 |

**Vermont Chemicals of High Concern**

| | |
|---|---|
| water | 7732-18-5 |

**Washington Chemicals of High Concern**

| | |
|---|---|
| water | 7732-18-5 |

**The components of this product are reported in the following inventories:**

| | | |
|---|---|---|
| US TSCA | : | All substances listed as active on the TSCA inventory |

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

## SECTION 16. OTHER INFORMATION

**Full text of other abbreviations**

| | | |
|---|---|---|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| ACGIH / STEL | : | Short-term exposure limit |



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AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
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