

## SAFETY DATA SHEET

### Section 1: Identification

Product name: Boron oxide  
Product use: For laboratory research purposes.  
Supplier: Trace Sciences International  
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Richmond Hill, ON L4B 3N6  
CANADA  
Telephone: +1 905-770-1100  
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### Section 2: Hazard(s) Identification

#### 2.1 GHS Classification

Reproductive toxicity (Category 1B), H360

#### 2.2 GHS Label elements, including precautionary statements

##### Pictogram



**Signal word** Danger

##### Hazard statement(s):

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.  
P202 Do not handle until all safety precautions have been read and understood.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P405 Store locked up.

### Section 3: Composition/ Information on Ingredients

**Formula** : B<sub>2</sub>O<sub>3</sub>  
**Molecular Weight** : 69.62 g/mol

Material	CAS-No.	EC-No.	Index-No.	Concentration
Boron Oxide	1303-86-2	215-125-8	-	<=100%

### Section 4: First-Aid Measures

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move person out of dangerous area if safe to do so.

**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 for at least 15 minutes. Use chemical shower if available. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contacts if possible.

**If swallowed**

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

## Section 5: Fire-Fighting Measures

**5.1 Conditions of flammability**

Not flammable or combustible.

**5.2 Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.3 Hazardous combustion products**

Hazardous decomposition products formed under fire conditions: Borane/boron oxides

**5.4 Special protective equipment for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.5 Further information**

No data available

## Section 6: Accidental Release Measures

**6.1 Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**6.2 Environmental precautions**

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

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

Sweep up and shovel. Keep in suitable, closed containers for disposal.

## Section 7: Handling and Storage

**7.1 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.

**7.2 Conditions for safe storage**

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

## Section 8: Exposure Controls/Personal Protection

### 8.1 Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Diboron trioxide	1303-86-2	TWA	10 mg/m <sup>3</sup>	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	10 mg/m <sup>3</sup>	Canada. British Columbia OEL
		TWAEV	10 mg/m <sup>3</sup>	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	10 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)

#### Remarks

Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required.

### 8.2 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.

#### Specific engineering controls

Use mechanical exhaust or laboratory fume hood to avoid exposure.

## Section 9: Physical and Chemical Properties

#### Appearance

Form

Crystalline

Colour

White

#### Safety Data

pH	5.46 at 25 °C (77 °F)
Melting point/freezing point	450 °C (842 °F)
Boiling point	1,860 °C (3,380 °F)
Flash point	Not applicable
Flammability (solid, gas)	The product is not flammable.
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	< 0.13 hPa at < 300 °C (< 572 °F)
Density	2.46 g/cm <sup>3</sup> at 21.5 °C (70.7 °F)
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Relative vapour density	No data available
Odour	Odourless
Odour Threshold	No data available
Evaporation rate	No data available

### Section 10: Stability and Reactivity

#### 10.1 Chemical stability

Stable under recommended storage conditions

#### 10.2 Possibility of hazardous reactions

No data available

#### 10.3 Conditions to avoid

Exposure to moisture may affect product quality.

#### 10.4 Materials to avoid

Acids, Strong oxidizing agents

#### 10.5 Hazardous decomposition products

See section 5

### Section 11: Toxicological Information

#### Acute toxicity

##### Oral

LD50 Oral - Rat - male - 2,600 mg/kg  
(OECD Test Guideline 401)

##### Inhalation

LC50 Inhalation - Rat - male and female - 4 h - > 2.12 mg/l - dust/mist  
(OECD Test Guideline 403)

##### Dermal

LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg  
(Fixed Dose Method)  
Remarks: (ECHA)

##### Other information on acute toxicity

LD50 Intravenous - Rat - 1,330 mg/kg

**Skin corrosion/irritation**

Skin - Rabbit - No skin irritation - 24 h

Remarks: (ECHA) (Boric Acid)

**Serious eye damage/eye irritation**

Eyes - Rabbit - No eye irritation - 24 h

(OECD Test Guideline 405) (Boric Acid)

**Respiratory or skin sensitization**

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406) (Boric Acid)

**Germ cell mutagenicity**

Test Type: Genotoxicity in vitro

Test System: Hamster - ovary

Method: With and without metabolic activation

Result: Negative (boric Acid)

Genotoxicity in vitro

Test Type: Ames test

Test System: S. typhimurium

Method: With and without metabolic activation

Result: Negative

(OECD Test Guideline 471) (Boric Acid)

Genotoxicity in vivo

Test system: Mouse - male and female - Oral

Results: Negative (OECD Test Guideline 476) (Boric Acid)

**Carcinogenicity**

No data available

**Reproductive toxicity**

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

**Signs and Symptoms of Exposure**

Cough, difficulty in breathing.

**Additional Information**

Repeated dose toxicity - Rat - male and female - No observed adverse effect level - 100 mg/kg - Lowest observed adverse effect level - 334 mg/kg

RTECS: Not available

## Section 12: Ecological Information

### 12.1 Toxicity

Toxicity to fish	Static test LC50 - Pimephales promelas (fathead minnow) - 79.7 mg/l - 96 h LC50 - Carassius auratus (goldfish) - 570 mg/l - 72 h
Toxicity to daphnia and other aquatic invertebrates	Static test LC50 - Daphnia dubia (water flea) - 115 mg/l - 48 h (OECD Test Guideline 202)  Static test LC50 - Daphnia magna (Water flea) - 133 mg/l - 48 h
Toxicity to algae	Static test EC50 - Selenastrum capricornutum (green algae) - 52.5 mg/l - 74.5 h (OECD Test Guideline 201)
Toxicity to bacteria	Respiration inhibition EC50 - Sludge Treatment - > 175 mg/l - 3 h

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

## Section 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.

### Contaminated packaging

Dispose of as unused product.

## Section 14: Transport Information

### IATA

Not dangerous good

## Section 15: Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

## Section 16: Other Information

### **Further information**

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**Date Prepared: February 10, 2025**