

## Material Safety Data Sheet

Date Printed: 09/FEB/2005  
Date Updated: 13/MAR/2004  
Version 1.1  
According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

---

#### 1 - Product and Company Information

---

Product Name	BORON TRIBROMIDE, 99.99+%
Product Number	230367
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
Fax	+61 2 9841 0500
Emergency Phone #	+61 2 9841 0566

---

#### 2 - Composition/Information on Ingredients

---

Product Name	CAS #	EC no	Annex I Index Number
BORON TRIBROMIDE	10294-33-4	233-657-9	005-003-00-0
Formula	BBr <sub>3</sub>		
Molecular Weight	250.54 AMU		
Synonyms	Borane, tribromo- * Boron tribromide (ACGIH) * Tribromoborane * Tribromoboron		

---

#### 3 - Hazards Identification

---

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT  
Reacts violently with water. Very toxic by inhalation and if swallowed. Causes severe burns.

---

#### 4 - First Aid Measures

---

##### AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

##### AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

##### AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

##### AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. Do not induce vomiting.

---

## 5 - Fire Fighting Measures

---

### CONDITIONS OF FLAMMABILITY

Reacts with metals to liberate flammable hydrogen gas. Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

### EXTINGUISHING MEDIA

**Suitable:** Carbon dioxide, dry chemical powder, or appropriate foam.

**Unsuitable:** Do not use water.

### SPECIAL RISKS

**Specific Hazard(s):** Emits toxic fumes under fire conditions.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

---

## 6 - Accidental Release Measures

---

### PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

### METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

---

## 7 - Handling and Storage

---

### HANDLING

**Directions for Safe Handling:** Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

### STORAGE

**Conditions of Storage:** Keep tightly closed. Store under nitrogen.

**Incompatible Materials:** Do not allow contact with water

### SPECIAL REQUIREMENTS: Light sensitive.

---

## 8 - Exposure Controls / Personal Protection

---

### ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	-
Poland		NDSCh	-
Poland		NDSP	10 mg/m <sup>3</sup>

**EXPOSURE LIMITS - DENMARK**

Source	Type	Value
OEL	TWA	10 mg/m <sup>3</sup>
		1 ppm

Remarks: L

**EXPOSURE LIMITS - GERMANY**

Source	Type	Value
TRGS 900	OEL	10 mg/m <sup>3</sup>

Remarks: NL

**EXPOSURE LIMITS - NORWAY**

Source	Type	Value
	OEL	10 mg/m <sup>3</sup>
		1 ppm

Remarks: T

**EXPOSURE LIMITS - SWITZERLAND**

Source	Type	Value
OEL	OEL	10 mg/m <sup>3</sup>
		1 ppm

**EXPOSURE LIMITS - UNITED KINGDOM**

Source	Type	Value
OEL	STEL	10 mg/m <sup>3</sup>
		1 ppm

**PERSONAL PROTECTIVE EQUIPMENT**

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

**9 - Physical and Chemical Properties**

Appearance	Physical State: Liquid Color: Colorless	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	91.3 °C	760 mmHg
MP/MP Range	-46 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	40 mmHg	14 °C
SG/Density	2.65 g/cm <sup>3</sup>	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	8.6 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	

---

Conductivity	N/A
Miscellaneous Data	N/A
Solubility	N/A

---

## 10 - Stability and Reactivity

---

### STABILITY

Stable: Stable.

Reactions to Avoid: Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

Conditions to Avoid: Do not allow water to enter container because of violent reaction. Heat. Light.

Materials to Avoid: Strong bases, Potassium, Sodium, Alcohols, Metals.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen bromide gas, Boron oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

## 11 - Toxicological Information

---

RTECS NUMBER: ED7400000

### SIGNS AND SYMPTOMS OF EXPOSURE

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Exposure can cause: Vomiting, diarrhea, fainting, shock, and coma.

### ROUTE OF EXPOSURE

Skin Contact: Causes severe burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe burns.

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

Ingestion: May be fatal if swallowed.

### TARGET ORGAN INFORMATION

Kidneys. Central nervous system.

---

## 12 - Ecological Information

---

No data available.

## 13 - Disposal Considerations

---

### SUBSTANCE DISPOSAL

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. Observe all federal, state, and local environmental regulations.

---

RID/ADR

UN#: 2692  
Class: 8  
PG: I

Proper Shipping Name: Boron tribromide

IMDG

UN#: 2692  
Class: 8  
PG: I  
Proper Shipping Name: Boron tribromide  
Marine Pollutant: No  
Severe Marine Pollutant: No

IATA

UN#: 2692  
Class: 8  
PG: I  
Proper Shipping Name: Boron tribromide  
Inhalation Packing Group I: Yes

---

15 - Regulatory Information

---

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 005-003-00-0

INDICATION OF DANGER: T+ C

Very toxic. Corrosive.

R-PHRASES: 14 26/28 35

Reacts violently with water. Very toxic by inhalation and if swallowed. Causes severe burns.

S-PHRASES: 9 26 28 36/37/39 45

Keep container in a well-ventilated place. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 3

SWITZERLAND

SWISS POISON CLASS: 2

---

16 - Other Information

---

WARRANTY

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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited

paper copies for internal use only.

**DISCLAIMER**

For R&D use only. Not for drug, household or other uses.