

MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
Bldg. 202 Rm. 211
Gaithersburg, Maryland 20899

SRM Number: 951
MSDS Number: 951
SRM Name: Boric Acid
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Boric Acid

Description: The isotopic composition:

Absolute Abundance Ratio, $^{10}\text{B}/^{11}\text{B}$	0.2473	±	0.0002
Boron-10, atom percent	19.827	±	0.013
Boron-11, atom percent	80.173	±	0.013

Other Designations: Orthoboric acid, boracic acid, boric trihydroxide, trihydroxyborene, borofax hydrogen borate, *o*-boric acid

Chemical Formula: H_3BO_3

CAS Registration: 10043-35-3

DOT Classification: Not hazardous by DOT regulations

Manufacturer/Supplier: Available from a number of suppliers

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration	Limits and Toxicity Data
Boric Acid	100 % *	No TLV established**
		Rat, Oral: LD ₅₀ : 2660 mg/kg
		Infant, Skin: LD _{LO} : 1200 mg/kg
		Woman, Oral: LD _{LO} : 200 mg/kg
		Man, Oral: LD _{LO} : 429 mg/kg
		Child, Oral: TD _{LO} : 500 mg/kg

*Acidimetric assay, weight percent

** The suggested ACGIH TLV-TWA for particulates not otherwise regulated is 10 mg/m³ for total dust.

SECTION VI. HEALTH HAZARD DATA

Route of Entry: X **Inhalation** X **Skin** X **Ingestion**

Health Hazards (Acute and Chronic): Boric Acid: Boric acid may be harmful by inhalation, ingestion, or skin absorption. Inhalation may cause irritation of the mucous membranes, sore throat, and coughing. Skin contact may cause irritation; repeated or prolonged contact may cause dermatitis. This material is readily absorbed through the skin. Ingestion or absorption may result in nausea, vomiting, diarrhea, abdominal cramps, erythematous lesions on skin and mucous membranes, circulatory collapse, tachycardia, cyanosis, delirium, convulsions, and coma. Death from circulatory failure, central nervous system depression, or renal failure may occur immediately or in 4 to 7 days. Death has occurred from less than 5 g in infants and 5 g to 20 g in adults. Other symptoms of poisoning include acidosis, intravascular coagulation, anemia, vision disturbances, and fever. Chronic use may lead to borism (dry skin, eruptions, gastric disturbances). Animal studies have reported reproductive effects.

Medical Conditions Generally Aggravated by Exposure: Gastrointestinal disorders, heart or cardiovascular disorders

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u> X </u>

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 min. Obtain medical assistance if necessary.

Inhalation: If inhaled, remove the victim to fresh air. If breathing is difficult, give oxygen; if victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance if necessary.

TARGET ORGAN(S) OF ATTACK: Skin, upper respiratory tract, central nervous system, and kidneys

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Isolate spill area and stay upwind. Avoid excessive dust generation and provide adequate ventilation. Sweep or vacuum up the spill and place waste material in an appropriate container for disposal.

Waste Disposal: Reclaim dry boric acid for salvage or reuse. Unsalvageable waste may be buried in an approved landfill. Follow all federal, state, and local regulations.

Handling and Storage: Persons handling the material should wear gloves, lab coats, goggles and other protective clothing to prevent contact with this material. Avoid breathing dust.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them.

DO NOT wear contact lenses in the laboratory.

Store boric acid in a cool, dry, well ventilated area away from excessive temperatures. Avoid physical damage to containers. Eyewash stations, washing facilities, and safety showers should be available in areas of use and handling.

SECTION VIII. SOURCE DATA/ OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Boric Acid*, December 8, 1998.
Sigma Chemical Company, MSDS *Boric Acid*, Valid 8/1999 - 10/1999.
The Merck Index, 11th Ed., (1989).
The Sigma-Aldrich Library of Chemical Safety Data, Ed. II, Vol. 1, (1988).
CRC Handbook of Chemistry and Physics, 71st Ed., 1990-1991.

Disclaimer: Physical and chemical data contained in this MSDS are provided for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified values for this material are given only on the NIST Certificate of Analysis.