

MATERIAL SAFETY DATA SHEET



Conforms to 93/112/EC and ISO 11014-1

1. Chemical Product and Company Identification

Product Name: Boric Acid

Product Number: EC-609

Chemical Names/

Description:

ortho-Boric acid, boracic acid, Borofax (H₃BO₃)

Manufacturer

National Diagnostics
305 Patton Drive
Atlanta, GA 30336

Telephone Numbers

(800) 526-3867
(404) 699-2121

Emergency Numbers

Chemtrec

(800) 424-9300 (U.S. & Canada)

01-703-527-3887 (outside U.S. & Canada)

2. Composition/Information on Ingredients

Component	% Comp.	CAS #	EINECS #	TLV (Units)
Boric Acid	100	10043-35-3	233-139-2	10 mg/m ³ total dust

3. Hazards Identification

Appearance and Odor

White powder or granules

EMERGENCY OVERVIEW - IMMEDIATE HAZARD

CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. BORIC ACID IS HARMFUL IF SWALLOWED OR INHALED.

EMERGENCY OVERVIEW - CHRONIC HAZARD WARNING:

PROLONGED ABSORPTION OF BORIC ACID CAUSES WEIGHT LOSS, VOMITING, DIARRHEA, SKIN RASH, CONVULSIONS AND ANEMIA. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER, AND KIDNEYS.

Potential Health Effects

Inhalation

Causes irritation to the mucous membranes of the respiratory tract.

Ingestion

Harmful or fatal if ingested in sufficient volume.

Skin

Causes irritation to the skin.

Eyes

Causes irritation to the eyes.

Signs and Symptoms of Overexposure

Inhalation

May be absorbed from the mucous membranes of the respiratory tract, and depending on the amount of exposure could result in symptoms paralleling ingestion.

Ingestion

Depending on the amount of exposure, ingestion could result in the development of nausea, vomiting, diarrhea, drowsiness, rash, headache, fall in body temperature, low blood pressure, renal injury, cyanosis, coma, and death. Adult fatal dose reported at 5 to > 30 grams.

Skin

Symptoms of skin absorption parallel inhalation and ingestion.

Eyes

Redness, itching and pain.

Carcinogenicity

Not listed as a carcinogen by NTP or IARC.

Mutagenicity

No information found.

Reproductive Toxicity

Studies of dogs and rats have shown that infertility and damage to testes can result from acute or chronic ingestion of boric acid. Evidence of toxic effects on the human reproductive system is inadequate.

Teratogenic Effects

No information found.

Routes of Entry

Ingestion and inhalation. Not significantly absorbed through the intact skin. Readily absorbed through damaged or burned skin.

Target Organ Statement

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of this substance.

4. First Aid Measures

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician.

Skin

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes

Immediately flush eyes with plenty of water for at least fifteen minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Flash Point	N.A.	Flammable Limits	N.A.
Flash Point Method	N.A.	Autoignition temperature	N.A.

Extinguishing media

Use media appropriate to the primary cause of fire.

Protective Equipment

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Hazardous Combustion Products

N.A.

Unusual Fire and Explosion Hazards

A mixture of potassium and boric acid may explode on impact.

NFPA Codes: Health 1 Flammability 0 Reactivity 0

6. Accidental Release Measures

Steps to be taken in case material is released or spilled

Ventilate area of leak or spill. Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

Waste Disposal Method

Disposal must be made in accordance with applicable federal, state, and local regulations.

Personal Precautions

Wear appropriate protective equipment as specified in section 8.

7. Handling and Storage

Handling

Avoid contact and inhalation. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.

Storage

Keep in a tightly closed container, stored in a cooled, dry, ventilated area.

Storage Temperature

Room Temperature

Disposal

Observe all national, state, and local regulations regarding disposal.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits

Component: Boric Acid

ACGIH Threshold Limit Value (TLV): 10 mg/m³ total dust

OSHA Permissible Exposure Limit (PEL): 15 mg/m³ total dust

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures below the

Airborn Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source.

Respiratory Protection

For conditions of use where exposure to the dust or mist is apparent, a full-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.

Eye Protection

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Other Control Measures

N.A.

9. Physical Properties

Boiling point	Decomposes	Evaporation Rate	N.A.
Melting point	169 C (336 F)	Solubility in water	1g/18mL in cold H ₂ O
Vapor pressure (mmHg)	2.6 @ 20 C (68 F)	pH	5.1 in 0.1 M soln.
Vapor density (Air = 1)	N.A.	Specific gravity (H₂O = 1)	1.43
% volatile by volume	0		

10. Stability and Reactivity

Stability

Stable under ordinary conditions of use and storage. If moisture is present, boric acid can be corrosive to iron.

Conditions to Avoid

No information found.

Hazardous Decomposition Products

Loses chemically combined water upon heating, forming metaboric acid (HBO₂) at 212-221 F, then pyroboric acid (H₂B₄O₇) at 285 - 320 F, and Boric anhydride at higher temperature.

Hazardous Polymerization

Will not occur

Incompatibles

Boric Acid:

Potassium, acetic anhydride, alkalis, carbonates, and hydroxides.

11. Toxicological Information

Product LD50 Values

Boric Acid Oral Rat LD50 (mg/kg): 2660
Boric Acid Dermal Rabbit LD50 (mg/kg): no information found

Component Cancer List Status

	NTP Carcinogen		IARC Category
	Known	Anticipated	
Boric Acid	No	No	None

12. Ecological Information

Boric Acid

The EC50/48-hour values for daphnia with boric acid are over 100 mg/l. This material may be toxic to aquatic life..

13. Disposal Considerations

Observe all national, state, and local regulations regarding disposal.

14. Transport Information

D.O.T.

Proper Shipping Name: Not regulated.

Hazard Class: N.A.

UN Number: N.A.

Packing Group: N.A.

I.A.T.A.

Proper Shipping Name: Not regulated.

Hazard Class: N.A.

UN Number: N.A.

Packing Group: N.A.

I.M.O.

Proper Shipping Name: Not regulated.

Hazard Class: N.A.

UN Number: N.A.

Packing Group: N.A.

15. Regulatory Information

United States

TSCA Regulatory Statement

All intentional ingredients are listed on the TSCA Inventory.

SARA 311/312 Hazard Categories

Component	Fire	Pressure	Reactivity	Acute	Chronic
Boric Acid	No	No	No	Yes	Yes

Europe

EEC Regulatory

All intentional ingredients are listed on the European EINECS Inventory.

16. Other Information

NFPA Codes: Health 1 Flammability 0 Reactivity 0

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