

Material Safety Data Sheet Boric Acid

1. IDENTIFICATION OF THE SUBSTANCE

Product Name: boric acid

2. COMPOSITION / INFORMATION ON INGREDIENTS

Product Identification

Synonyms: ortho-Boric acid; boracic acid; boric acid (H_3BO_3)

Chemical Family: borates

CAS No.: 10043-35-3

Molecular Weight: 61.83

Chemical Formula: H_3BO_3

3. HAZARDS IDENTIFICATION

Boric acid is a white, odorless salt-like crystal or fine powder that is not flammable or combustible. It has low dermal and oral toxicity. It is quickly processed by the body and expelled through normal processes.

NFPA Health Rating: 0

NFPA Flammability Rating: 0

NFPA Reactivity Rating: 0

Contact Rating: 1

HMIS Health Rating: 1

HMIS Flammability Rating: 0

HMIS Reactivity Rating: 0

Content: >99% boric acid <1% water

Inhalation: Occasional mild irritation to nose or throat may occur if exposed to high levels of dust (>10mg/m³).

Ingestion: Small amounts (<teaspoon) are not likely to cause adverse effects. Larger amounts may cause gastrointestinal symptoms.

Skin Contact: Not significantly absorbed through the intact skin. Readily absorbed through damaged or burned skin. Symptoms of skin absorption parallel inhalation and ingestion.

Eye Contact: Used an eye antiseptic. May cause irritation, redness, and pain if exposed to extremely high amounts.

Chronic Exposure: Symptoms of over-exposure have been associated with high levels of ingestion and/or absorption through large areas of damaged skin (such as vomiting, diarrhea, skin rash, convulsions and anemia). 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 has not occurred.

Aggravation Of Pre-Existing Conditions:

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

4. EMERGENCY AND FIRST AID MEASURES

Inhalation: Remove to fresh air if subject is experiencing nose or throat irritation.

Ingestion: Boric acid has low acute toxicity. Observation for healthy adults is required only for ingestion of 4-8 grams. For larger amounts ingested, maintain adequate kidney function and force fluids.

Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists. Wash clothing before re-use.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if irritation persists.

5. FIRE-FIGHTING MEASURES

Fire: Not considered to be a fire hazard. (29 CFR 1910.1200).

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

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

6. ACCIDENTAL RELEASE MEASURES

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.

Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

7. HANDLING AND STORAGE

Store in closed containers in a cool, dry area. Carbon steel or aluminum containers are suitable for storage. Stainless steel is needed for moist conditions. Use good housekeeping practices to prevent accumulation of dust and follow sound cleaning techniques that will keep airborne particulates at a low level. Wash hands after handling this material. Avoid contact especially when skin is cut or abraded. Observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit (PEL): 15 mg/m³ total dust, 5 mg/m³ respirable fraction for nuisance dusts.

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

containing no asbestos and < 1% crystalline silica for Particulates Not Otherwise Classified (PNOC).

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, a half face-piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerin, etc.) are present, use a NIOSH type R or P filter.

Skin Protection: Gloves and lab coat, apron or coveralls.

Eye Protection: Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White powder or granules.

Odor: Odorless.

Solubility: 4.7% @ 20°C/68°F.

Density: 1.43

pH: 6.1 Aqueous solution: (0.1% solution)

% Volatiles by volume @ 21C (70F): 0

Boiling Point: Decomposes.

Melting Point: 169°C (336°F)

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): Neg. @ 20C (68°F)

Evaporation Rate (BuAc=1): No information

10. STABILITY AND REACTIVITY

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

Hazardous Decomposition Products: None.

Hazardous Polymerization: Will not occur.

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

Conditions to Avoid: No information found.

11. TOXICOLOGICAL DATA

Oral rat LD50: 2660 mg/kg; oral woman LDLo: 200 mg/kg; investigated as a mutagen, tumorigen, reproductive effector.

Reproductive Toxicity: See Chronic Health Hazards.

NTP Carcinogen

Ingredient	Known	Anticipated
Boric Acid (10043-35-3)	No	No

12. ECOLOGICAL INFORMATION

Environmental Fate: No information found.

Environmental Toxicity: The EC50/48-hour values for daphnia are over 100 mg/l. This material may be toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 not listed, NPRI Canada not listed. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Not regulated. USDOT non-hazardous. TDG Canada not regulated, no UN number and not regulated for international air/rail/road/sea transportation.

14. REGULATORY INFORMATION

US EPA RCRA: not listed as hazardous waste (40 CFR 261)

CERCLA/SARA: not listed.

SDWA: not listed.

CWA 33 USC 1251: boric acid itself is not itself a discharge covered by any water quality criteria...

IARC: not listed as a carcinogen.

Cal. Prop. 65: not listed as carcinogen or reproductive toxin



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