



Bonide Boric Acid Roach Powder

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Bonide Boric Acid Roach Powder
Product code : 4460

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Insecticide

1.3. Details of the supplier of the safety data sheet

Bonide Products, Inc.
6301 Sutliff Road
Oriskany, NY 13424
T (315) 736-8231
www.bonide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC - 1 (800) 424-9300 and/or 1 (703) 527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Reproductive Toxicity 2 H361

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H361 - Suspected of damaging fertility or the unborn child
Precautionary statements (GHS-US) : P203 - Obtain, read and follow all safety instructions before use.
P260 - Do not breathe dust.
P263 - Avoid contact during pregnancy and while nursing.
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves, clothing, eye, and face protection.
P318 - If exposed or concerned, get medical advice.
P405 - Store locked up.
P501 - Dispose of contents/container to in accordance with local/national regulations

2.3. Other hazards

None

SECTION 3: Composition/information on ingredients

Mixture

Name	Product identifier	%
Boric acid	(CAS No) 10043-35-3	98

SECTION 4: First aid measures

4.1. Description of first aid measures

Eyes : Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.
Skin : No treatment necessary.

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- Ingestion : Small amounts (a teaspoon) swallowed accidentally are not likely to cause effects; swallowing larger amounts may cause gastrointestinal systems. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention. Never give anything by mouth to an unconscious person.
- Inhalation : If symptoms such as nose or throat irritation are observed, remove to fresh air.

4.2. Most important symptoms and effects, both acute and delayed

None known.

4.3. Indication of any immediate medical attention and special treatment needed

Only observation is required for adult ingestion of less than a few grams of the product. For ingestion of larger amounts, maintain fluid and electrolyte balance and maintain adequate kidney function. Gastric lavage is only recommended for heavily exposed, symptomatic patients in whom emesis has not emptied the stomach. Hemodialysis should be reserved for patients with massive acute absorption, especially for patients with compromised renal function. Boron analyses of urine or blood are only useful for verifying exposure and are not useful for evaluating severity of poisoning or as a guide in treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

None. Boric acid is itself a flame retardant. Boric acid is not flammable, combustible or explosive.

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Boric acid is a water-soluble white powder that may cause damage to trees or vegetation by root absorption.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up on land : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.
- Methods for cleaning up in water : Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level or meets local water quality standards.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Good housekeeping procedures should be followed to minimize dust generation and accumulation. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Provide good ventilation in process area to prevent formation of dust.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in dry protected location to prevent any moisture contact. Keep container closed when not in use. To maintain package integrity and to minimize caking of the product, bags should be handled on a "first-in first-out" basis.
- Incompatibilities : strong reducing agents such as metal hydrides or alkali metals
- Storage temperature and pressure : Ambient and Atmospheric
- Special sensitivity : Moisture (Caking)

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OSHA PEL-TWA: 15 mg/m³ total boric acid dust and 5 mg/m³ respirable dust

ACGIH TLV-TWA-OEL: 2 mg/m³ inhalable boric acid particles

ACGIH 15 min STEL: 6 mg/m³ inhalable boric acid particles

CalOSHA PEL-TWA: 5 mg/m³ total boric acid dust

Use local exhaust ventilation to keep airborne concentrations of boric acid dust below permissible exposure limits.

8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear protective gloves if environment is excessively dusty.
Eye protection	: Chemical goggles or safety glasses may be warranted if environment is excessively dusty.
Respiratory protection	: Wear approved NIOSH/MSHA certified respirator or mask, where airborne concentrations are expected to exceed exposure limits.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Color	: White.
Odor	: Odorless.
Odor threshold	: No data available
pH solution	: : 6.1 (0.1% solution); 5.1 (1.0% solution); 3.7 (4.7% solution) @ 20°C
Melting point/Freezing Point	: 815°C/ 171 °C
Boiling point	: Not applicable
Flash point	: Not applicable: inorganic substance
Self ignition temperature	: Not applicable
Decomposition temperature	: If heated above 100°C water is lost, and boric acid converts initially to metaboric acid (HBO ₂) and on further heating forms boric oxide (B ₂ O ₃)
Flammability (solid, gas)	: Not applicable
Vapor pressure and density	: Not applicable
Relative density	: 1.49 @ 23 °C
Solubility	: Water: 1 g/18mL
PARTITION COEFFICIENT; n-octanol/water	: Log Pow = -1.09 at 22°C
Molecular weight	: 61.8
Viscosity	: Not applicable: solid substance
Explosive properties	: Not applicable
Oxidizing properties	: Does not oxidize
Explosive limits	: Not applicable
Chemical Formula	: H ₃ BO ₃

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Under normal ambient temperatures (-40 °C to +40°C), boric acid is stable. If heated above 100°C water is lost, and boric acid converts initially to metaboric acid (HBO₂) and on further heating forms boric oxide (B₂O₃).

10.3. Possibility of hazardous reactions

Boric acid is a weak acid that may cause corrosion of base metals. Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard. Avoid contact with strong reducing agents by storing according to good industrial practice.

10.4. Conditions to avoid

If moisture is present, boric acid can be corrosive to iron.

10.5. Incompatible materials

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

10.6. Hazardous decomposition products

If heated above 100°C water is lost, and boric acid converts initially to metaboric acid (HBO₂) and on further heating forms boric oxide (B₂O₃).

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SECTION 11: Toxicological information

11.1. Routes of exposure

Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because boric acid is poorly absorbed through intact skin. Boric acid is not intended for ingestion.

11.2. Symptoms of Exposure

Small amounts (e.g. a teaspoonful) swallowed accidentally are not likely to cause effects. Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid and sodium borate dust. Human epidemiological studies indicate no effect on fertility in occupational populations with chronic exposures to borate dust and indicate no effect to a general population with high exposures to borates in the environment.

11.4. Toxicological Data

ACUTE TOXICITY:

Method: Acute Oral Toxicity Study – OECD Guideline 401, Species: Rat, Dose: 2000 – 5000 mg/kg body weight, Routes of Exposure: Oral
Results: Low acute oral toxicity. The oral LD50 value in male rats is 3,450 mg/kg bw, and in female rats is 4080 mg/kg bw.

Classification: Acute Toxicity (Oral) Category 5 (Hazard statement: H303: May be harmful if swallowed)

Method: Acute Dermal Toxicity Study – U.S. EPA FIFRA Guidelines, Species: Rabbit, Dose: 2,000 mg/kg bw, Routes of Exposure: Dermal
Results: Low acute dermal toxicity; LD50 in rabbits is > 2,000 mg/kg of body weight. Poorly absorbed through intact skin.

Based on the available data, the classification criteria are not met.

Method: Acute Inhalation Toxicity Study – OECD Guideline 403, Species: Rat, Dose: 2.12 mg/L, Routes of Exposure: Inhalation

Results: Low acute inhalation toxicity; LC50 in rats is > 2.0 mg/l (or g/m³).

Based on the available data, the classification criteria are not met.

SKIN CORROSION / IRRITATION:

Method: Primary Dermal Irritation Study – U.S. EPA FIFRA Guidelines, Species: New Zealand White Rabbit, Dose: 0.5 g moistened with saline
Routes of Exposure: Dermal

Results: No skin irritation. Mean Primary Irritation Score: 0.1. Based on the available data, the classification criteria are not met.

SERIOUS EYE DAMAGE / IRRITATION:

Method: Eye Irritation Study – similar to OECD Guideline 405, Species: New Zealand White Rabbit, Dose: 0.1 g, Routes of Exposure: Eye
Results: Not irritating, corneal involvement or irritation clearing in 7 days.

Classification: Based on mean scores < 1, and the effects were fully reversible within 7 days, the classification criteria are not met. Many years of occupational exposure indicate no adverse effects on human eye.

RESPIRATORY OR SKIN SENSITISATION:

Method: Buehler Test – OECD Guideline 406, Species: Guinea Pig, Dose: 0.4 g 95 % w/w/boric acid, Routes of Exposure: Dermal

Results: Not a skin sensitiser. No respiratory sensitisation studies have been conducted. There are no data to suggest that boric acid is a respiratory sensitiser. Based on the available data, the classification criteria are not met.

GERM CELL MUTAGENICITY:

Method: Several in vitro mutagenicity studies have been carried out on boric acid including gene mutation in mammalian cells, unscheduled DNA synthesis, chromosomal aberration and sister chromatid exchange in mammalian cells.

Species: L5178Y mouse lymphoma, V79 Chinese hamster cells, C3H/10T1/2 cells, hepatocytes, Chinese hamster ovary (CHO cells).

Dose: 1.0 - 10.0 mg/ml (1000 -10000 ppm) boric acid

Routes of Exposure: in vitro

Results: Not mutagenic (based on boric acid). Based on the available data, the classification criteria are not met.

CARCINOGENICITY:

Method: OECD 451 equivalent., Species: B6C3F1 mice, Dose: 446 ; 1150 mg boric acid/kg bw/day, Routes of Exposure: Oral feeding study

Results: No evidence of carcinogenicity. Based on the available data, the classification criteria are not met.

REPRODUCTIVE TOXICITY:

Method: Three-generation feeding study, similar to OECD 416 Two-Generation Study, Species: Rat

Dose: 0; 34 (5.9); 100 (17.5) and 336 (58.5) mg boric acid (mg B)/kg bw/day, Routes of Exposure: Oral feeding study

Results: NOAEL in rats for effects on fertility in males is 100 mg boric acid/kg bw equivalent to 17.5 mg B/kg bw.

Method: Prenatal Developmental Toxicity Study of Boric Acid – OECD Guideline 414, Species: Rat

Dose: 0; 19 (3.3); 36 (6.3); 55 (9.6); 76 (13.3) and 143 (25) mg boric acid (mg B)/kg bw.

Routes of Exposure: Oral feeding study

Results: NOAEL in rats for developmental effects on the foetus including foetal weight loss and minor skeletal variations is 55 mg boric acid/kg bw or 9.6 mg B/kg.

Classification: Reproductive Toxicity Category 2 (Hazard statement: H361: Suspected of damaging fertility or the unborn child.)

Method: Occupational studies of evaluating sensitive sperm parameters in highly exposed borate workers. Epidemiological studies evaluating high environmental exposures to boron and developmental effects in humans have been conducted.

Species: Human, Dose: A subset of workers was exposed to 125 mg B/day.

Routes of Exposure: Combined oral ingestion and inhalation

Results: No adverse fertility effects in male workers. Epidemiological studies of human developmental effects have shown an absence of effects in exposed borate workers and populations living in areas with high environmental levels of boron.

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STOT-SINGLE EXPOSURE:

Method: Standard Test Method for Estimating Sensory Irritancy of Airborne Chemicals – ASTM E981-04 (2004)

Species: Mouse, Dose: 221 - 1096 mg boric acid/m³, Routes of Exposure: Inhalation

Results: The highest concentration of boric acid that was achievable with acceptable control of the aerosol concentration was 1096 mg/m³ with a %RD of 19%. The lowest exposure tested of 221 mg/m³ boric acid resulted in a reduced respiration rate of 9%, graded as no irritation. Based on the available data, the classification criteria are not met.

Method: Sensory irritation in human volunteers, Species: Human, Dose: 2.5, 5, 10 mg boric acid/m³, Routes of Exposure: Inhalation

Results: No irritation from boric acid was observed at exposures up to 10 mg/m³ among male and female human volunteers under controlled laboratory conditions.

STOT-REPEATED EXPOSURE:

Method: Chronic toxicity study of boric acid, similar to OECD 452

Species: Rat, Dose: 0; 33 (5.9); 100 (17.5); 334 (58.5) mg boric acid (B)/kg bw per day (nominal in diet), Routes of Exposure: oral: feed

Results: A NOAEL of 17.5 mg B/kg bw/day equivalent to 100 mg boric acid/kg bw/day was determined in a chronic feeding study (2 years) in rats and is based on testes effects. Other effects (kidney, haemopoietic system) are regarded only at even higher dose levels. Based on the available data, the classification criteria are not met.

ASPIRATION HAZARD:

Physical form of solid powder indicates no aspiration hazard potential.

SECTION 12: Ecological information

12.1. Toxicity

Boric acid (10043-35-3)	
LC50 fish 1	100 ppm (96 h; Salmo gairdneri (Oncorhynchus mykiss); Soft water)
EC50 Daphnia 1	658 - 875 mg/l (48 h; Daphnia magna)
LC50 fish 2	79 ppm (96 h; Salmo gairdneri (Oncorhynchus mykiss); Hard water)
EC50 Daphnia 2	19.7 mg/l (336 h; Daphnia magna)
TLM fish 1	1800 ppm (24 h; Gambusia affinis)
Threshold limit algae 1	5 mg/l (672 h; Elodea sp.)
Threshold limit algae 2	0.4 - 0.8,336 h; Chlorella sp.; Growth

12.2. Persistence and degradability

Biodegradation is not an applicable endpoint since the product is an inorganic substance.

12.3. Bioaccumulative potential

This product will undergo hydrolysis in water to form undissociated boric acid. Boric acid will not biomagnify through the foodchain. Octanol/Water partition coefficient: Log Pow = -0.7570 @ 25°C (based on boric acid)²⁷.

12.4. Mobility in soil

The product is soluble in water and is leachable through normal soil. Adsorption to soils or sediments is insignificant.

12.5. Other adverse effects

None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Small quantities of boric can usually be disposed of at municipal landfill sites. No special disposal treatment is required, but refer to state and local regulations for applicable site-specific requirements. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be re-used for an appropriate application. Product packaging should be recycled where possible.
Ecology - waste materials	: Avoid release to the environment.
California Hazardous Waste Designation	: California identifies substances with acute oral, acute dermal, or acute inhalation LD50s less than 2,500, 4,300, or 10,000 mg/kg, respectively as "hazardous wastes." Additionally, the aquatic LC50 is less than 500 mg/L, the chemical is considered a "hazardous waste." Boric acid is therefore a "hazardous waste" if spilled in California, and should be handled in accordance with applicable state regulations.

SECTION 14: Transport information

Not regulated for transport by DOT.

Boric acid has no UN Number and is not regulated under international rail, highway, water, or air transport regulations.

SECTION 15: Regulatory information

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

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CAUTION

May be harmful if swallowed or inhaled. Causes eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water before smoking or eating after handling. Avoid breathing dust. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

SECTION 16: Other information

Other information : None.

SDS US (GHS HazCom 2012) - Pesticides

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.