



SAFETY DATA SHEET

According to 29 CFR 1910.1200

BORIC ACID

Date of issue: December 28, 2011 Revision date: September 01, 2023 Version: 5

SECTION 1.- IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product form Substance
Substance name Boric acid
CAS No. 10043-35-3
Formula H_3BO_3
Synonyms Orthoboric acid, boraric acid

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

Use of the substance/mixture According to the technical sheet of the product.

1.3 Details of the supplier of the safety data sheet

Pima Chemicals & Fertilizers, LLC
1370 Nogales, Az.
Tel. 011 52 (662) 182-0559
rgutierrez@qpima.com
www.qpima.com

Química Pima, S.A. de C.V.
Del Cobre 20, Parque Industrial Hermosillo.
Hermosillo, Sonora, México. C.P. 83297
Tel. 011 (662) 251-0010 ventas@qpima.com

1.4 Emergency telephone number

Emergency number CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

SECTION 2.- HAZARD IDENTIFICATION

2.1. GHS-US classification

Repr. Cat. 1B; H360

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)



Signal word (GHS-US):

Danger

Hazard statement (GHS-US):

H360 May damage fertility or the unborn child.

Precautionary statements (GHS-US):

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P308+P313: IF exposed or concerned: Get medical advice/attention.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

Boric acid is a white odorless, powdered substance that is not flammable, combustible, or explosive, and has low acute oral and dermal toxicity.

2.4 Unknown acute toxicity (GHS-US)

Not applicable.



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SECTION 3.- COMPOSICION / INFORMATION OF INGREDIENTS

3.1 Mixture Not applicable

3.2 Substance

| Name | Product identifier | % | GHS-US classification |
|-------------|---------------------------|----------|------------------------------|
| Boric acid | (CAS No.) 10043-35-3 | > 99.9% | Repr. Cat. 1B; H360 |

SECTION 4.- FIRST AID MEASURE

4.1. Description of first air measure

First-aid measures general Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

First-aid measures after eye contact No treatment necessary because non-irritating.

First-aid measures after skin contact No treatment necessary because non-irritant.

First-aid measures after inhalation If symptoms such as nose or throat irritation are observed, remove person to fresh air.

First-aid measures after ingestion If large amounts are swallowed (i.e. more than one teaspoon), give two glasses of water or milk to drink and seek medical attention.

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

Symptoms/injuries after inhalation N.A. (Not Applicable)

Symptoms/injuries after skin contact N.A.

Symptoms/injuries after eye contact N.A.

Symptoms/injuries after ingestion N.A.

Chronic symptoms N.A.

4.3. Indications of any immediate medical attention and special treatment needed N.A. (Not Applicable)

SECTION 5.- FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media Any fire extinguishing media may be used on nearby fires.

Unsuitable extinguishing media N.A.

5.2. Special hazard arising from the substance or mixture

Fire hazard None. Because, boric acid is not flammable, combustible or explosive. The product is itself a flame retardant.

Explosion hazard None. Because, boric acid is not flammable, combustible or explosive. The product is itself a flame retardant.

Reactivity None. Because, boric acid is not flammable, combustible or explosive. The product is itself a flame retardant.

5.3. Advice for firefighters

Precautionary measures fire N.A.

Firefighting instructions N.A.



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Protection during firefighting N.A.

SECTION 6. - ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. In case of exposure to prolonged or high level of airborne dust, wear a personal respirator in compliance with national legislation.

6.2. Environmental precautions

Boric acid is a water-soluble white powder that may, at high concentrations cause damage to trees or vegetation by root absorption (see section 12).

6.3. Methods and material for containment and cleaning up.

Land spill Vacuum, shovel or sweep up boric acid and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during clean up and disposal. No personal protective equipment is needed to clean up land spills.

Spillage into 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 (see sections 12, 13 and 15).

6.4 Reference to other sections

See sections 8 and 13 for further information.

SECTION 7.- HANDLING AND STORAGE

7.1. Precautions for safe handling

To maintain package integrity and to minimize caking of the product, bags should be handled on a first-in first out basis. Good housekeeping and dust prevention procedures should be followed to minimize dust generation and accumulation. Your supplier can advise you on safe handling, please contact the supplier.

7.2. Conditions for safe storage, including any incompatibilities

No special handling precautions are required, but dry, indoor storage is recommended. No specific requirements. Provide appropriate ventilation and store bags such as to prevent any accidental damage.

7.3 Specific end use(s) The product should be kept away from strong reducing agents. Apply above handling advice when mixing with other substances.

See exposure scenario in Annex to the MSDS.

SECTION 8.- EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

| Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|------------|----------------------|----------------------|------------|
| Boric acid | 10 mg/m ³ | 10 mg/m ³ | N.A. |

8.2. Exposure controls

- Appropriate engineering controls** No data available
- Personal protective equipment** Use local exhaust ventilation to keep airborne concentrations of boric acid dust below permissible exposure levels. Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.
- Material for protective clothing** No data available
- Hand protection** No data available
- Eye protection** Goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty.



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| | |
|---------------------------------|---|
| Skin and body protection | No data available |
| Respiratory protection | In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation (make reference to the appropriate CEN standard) |
| Environmental exposure controls | No special requirement. |

SECTION 9.- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | | | |
|---|----------|-------------|--|
| Physical state: | Solid | Appearance: | crystalline |
| Odor: | Odorless | Color: | White |
| Molecular mass | | | 61.83 g/mol |
| Odor threshold | | | No data available. |
| pH | | | No data available. |
| pH solution | | | 6.1 (0.1 % solution) 5.1 (1.0% solution) @ 20°C 3.7 (4.7 % solution) |
| Relative evaporation rate (butyl acetate=1) | | | No data available. |
| Melting point | | | 171°C |
| Freezing point | | | No data available. |
| Boiling point | | | 1860°C |
| Flash point | | | Non flammable |
| Self ignition temperature | | | Not applicable. |
| Decomposition temperature | | | 169±1 toHBO ₂ & -1 ½ H ₂ O at 300 °C |
| Flammability (solid, gas) | | | No data available. |
| Vapor pressure | | | Negligible @ 20°C |
| Relative vapor density at 20°C | | | N.A. |
| Relative density | | | 1.51 @ 20°C |
| Solubility | | | Soluble in water: 4.7% @ 20°C; 27.5% @ 100°C |
| Log Pow | | | Not applicable (inorganic substance). |
| Log Kow | | | No data available. |
| Viscosity, kinematic | | | N.A. |
| Viscosity, dynamic | | | N.A. |
| Explosive properties | | | Non explosive |
| Oxidizing properties | | | N.A. |
| Explosive limits | | | No data available. |

9.2 Other information No additional information available.

SECTION 10.- STABILITY AND REACTIVITY



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- 10.1 Reactivity N.A.
- 10.2 Chemical stability Boric acid is a stable product, but when heated it loses water, first forming metaboric acid (HBO₂), and on further heating it is converted into boric oxide (B₂O₃).
- 10.3 Possibility of hazardous reactions Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.
- 10.4 Conditions to avoid N.A.
- 10.5 Incompatible materials Boric acid reacts as a weak acid which may cause corrosion of base metals. Avoid contact with strong reducing agents such as metal hydrides or alkali.
- 10.6 Hazardous decomposition products N.A.

SECTION 11.-TOXICOLOGICAL INFORMATION

11. 1. Information on toxicological effects

Likely routes of exposure Skin and eyes contact; inhalation; ingestion.
Acute toxicity Low acute oral toxicity; LD50 in rats is 3,500 to 4,100 mg/kg of body weight.

| Name | LD ₅₀ oral | LD ₅₀ dermal | LC ₅₀ inhalation |
|-----------------|-----------------------|-------------------------|-----------------------------|
| Phosphoric acid | 3500-4100 mg/kg (rat) | > 2000 mg/kg (rabbit) | > 2.0 mg/l |

Skin corrosion/irritation Boric acid is poorly absorbed through intact skin. Non-irritant.
Serious eye damage/irritation Non-irritant.
Respiratory or skin sensitization N.A.
Germ cell mutagenicity N.A.
Carcinogenicity N.A.
Reproductive toxicity Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies in rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus including fetal weight loss and minor skeletal variations. The doses administered were many times, in excess of those which humans would normally be exposed to. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.
Specific target toxicity (single exposure) N.A.
Specific target toxicity (repeat exposure) N.A.
Aspiration hazard Low acute inhalation toxicity; LC50 in rats is greater than 2.0 mg/l (or g/m3).

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Phytotoxicity. Boron is an essential micronutrient for healthy growth of plants, however, it can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimize the amount of borate product released to the environment.
Algal toxicity. Green algae, *Pseudokirchneriella subcapitata* (Hansveit and Oldersma, 2000) 72-hr EC50 –biomass = 40 mg B/L, or 229 mg boric acid/L.
Invertebrate toxicity. *Daphnia*, *Daphnids*, *Daphnia magna* (Gersich, 1984a) 48-hr LC50 = 133 mg B/L or 760 mg boric acid/L or 619 mg disodium tetraborate, anhydrous/L
Fish toxicity. Fish, *Fathered minnow*, *Pimephales promelas* (Soucek et al., 2010) 96-hr LC50 = 79.7 mg B/L or 456 mg boric acid/L or 370 mg disodium tetraborate, anhydrous.



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12.2 Persistence and degradability

Boron is naturally occurring and ubiquitous in the environment. Boric acid decomposes in the environment to natural borate.

12.3 Bioaccumulative potential

Not significantly bioaccumulative.

12.4 Mobility in soil

The product is soluble in water and is leachable through normal soil.

12.5 Other adverse effects

Other information No Data Available

SECTION 13.- DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste treatment methods

Small quantities of boric acid can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be used for an appropriate application.

SECTION 14.- TRANSPORT INFORMATION

14.1. UN number

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

14.2. UN proper shipping name

N.A.

14.3. Additional information

| | |
|--------------------|------|
| Other information | N.A. |
| Overland transport | N.A. |
| Transport by sea | N.A. |
| Air transport | N.A. |

SECTION 15.- REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance

It should be noted that borates are safe under conditions of normal handling and use, besides, they are essential nutrients to plants, and research shows that they play a beneficial role in human health. CLP classification has been solely based on animal tests where animals were exposed to high doses of boric acid over long periods of time. These doses were many times higher than humans are exposed to under conditions of normal handling and use. Consequently, a precautionary decision was taken by the European Commission. Although we will comply with the body of legislation triggered by that decision, we are in process of all possible legal actions.

Clean Air Act (Montreal Protocol)

Boric acid was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

EU Reach Regulation

Boric Acid is listed in the Candidate List of Substances of Very High Concern "SVHC" for eventual inclusion in Annex XIV to REACH Regulation 1907/2006 ("Authorization List"). (18.06.2010-ED/30/2010). Boric acid is listed in the Annex XVII of REACH Regulation 1907/2006 (EU No.109/2012) and its use in consumer products above specific concentration limits is restricted. Note that this restriction is only specific to consumer products and do not cover its industrial and/or professional applications. Boric acid can be used in consumer products below specific concentration limits (which is C ≥5.5% for Boric Acid).



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15.2. Chemical safety assessment

Chemical Safety Assessment of Boric Acid has been carried out under REACH Regulation of the EU.

SECTION 16.- OTHER INFORMATION

| | | | | | | | | |
|-----------------|--------------------|---|------------------|---|-------------------------|---|---------------------|---|
| NFPA | NFPA health hazard | 1 | NFPA fire hazard | 0 | NFPA instability hazard | 0 | NFPA Special hazard | - |
| HMIS III | Health | 1 | Flammability | 0 | Physical | 0 | Personal Protection | E |

E Safety glasses, gloves and respirator for dust.



Made for: Quimica Pima, S.A. de C.V. Del Cobre No. 20 Parque Industrial. Hermosillo, Sonora, México. 83297.

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Revision note: May 28, 2018. 3th rev. In this latest revision is updated according to 29 CFR 1910.1200.
February 01, 2019. 4th rev. Section 2 and section 16 were modified.
September 01, 2023. 5th rev. Syntax and spelling improvements and corrections were made.

IMPORTANT NOTE: Information in this SDS is from available published sources and is believed to be accurate, but is not exhaustive and will be used only as a guide, which is based on current knowledge of the chemical substance or mixture and apply to the appropriate product for safety precautions. No warranty, express or implied, is made and Pima Chemicals & Fertilizers, LLC and Quimica Pima, S.A. de C.V. assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.

End of Safety Data Sheet