



## Material Safety Data Sheet

Creation Date 07-Apr-2009

Revision Date 04-Jan-2013

Revision Number 3

### 1. PRODUCT AND COMPANY IDENTIFICATION

|                        |  |
|------------------------|--|
| <b>Product Name</b>    | <b>Boric acid</b>  |
| <b>Cat No.</b>         | <b>A73-1; A73-3; A73-10; A73-10LC; A73-50; A73-50LC; A73-325LB; A73-500; A74-1; A74-3; A74-10; A74-500; A77-10; A78-10; A78-500; A79-12; A79-212; BP168-1; BP168-500</b> |
| <b>Synonyms</b>        | Orthoboric acid; Borofax; (Powder/Crystalline/Certified ACS/Laboratory/NF/EP/BP/JP/Electrophoresis)  |
| <b>Recommended Use</b> | Laboratory chemicals   |
| <b>Company</b>         | <b>Emergency Telephone Number</b>  |
| Fisher Scientific      | CHEMTREC®, Inside the USA: 800-424-9300  |
| One Reagent Lane       | CHEMTREC®, Outside the USA: 001-703-527-3887   |
| Fair Lawn, NJ 07410    |  |
| Tel: (201) 796-7100    |  |

### 2. HAZARDS IDENTIFICATION

#### WARNING!

#### Emergency Overview

May cause harm to the unborn child. May impair fertility. Irritating to eyes and skin. May cause central nervous system effects.

**Appearance** White

**Physical State** Powder Solid

**odor** odorless

#### Target Organs

Eyes, Skin, Central nervous system (CNS), Reproductive System, Liver, Kidney, Blood

#### Potential Health Effects

##### Acute Effects

##### Principle Routes of Exposure

##### Eyes

Irritating to eyes.

##### Skin

Irritating to skin. May be harmful in contact with skin. Chronic exposure may cause dermatitis.

##### Inhalation

May be harmful if inhaled. Inhalation may cause central nervous system effects. May cause irritation of respiratory tract.

##### Ingestion

May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Chronic Effects** Adverse reproductive effects have occurred in humans.. May impair fertility. May cause harm to the unborn child. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Haz/Non-haz

| Component          | CAS-No     | Weight % |
|--------------------|------------|----------|
| Boric acid (H3BO3) | 10043-35-3 | >95      |

### 4. FIRST AID MEASURES

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation** Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Get medical attention immediately if symptoms occur.

**Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician** Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point** No information available.  
**Method** No information available.

**Autoignition Temperature** No information available.

**Explosion Limits**

**Upper** No data available  
**Lower** No data available

**Suitable Extinguishing Media** Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..

**Unsuitable Extinguishing Media** No information available.

**Hazardous Combustion Products** No information available.

**Sensitivity to mechanical impact** No information available.  
**Sensitivity to static discharge** No information available.

#### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA** Health 2 Flammability 0 Instability 1 Physical hazards N/A

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

**Environmental Precautions** Should not be released into the environment.

**Methods for Containment and Clean Up** Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

## 7. HANDLING AND STORAGE

**Handling** Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not ingest.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures** Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

**Exposure Guidelines**

| Component                                    | ACGIH TLV   | OSHA PEL | NIOSH IDLH |
|--|---|----------|------------|
| Boric acid (H <sub>3</sub> BO <sub>3</sub> ) | TWA: 2 mg/m <sup>3</sup><br>STEL: 6 mg/m <sup>3</sup> |          |            |

| Component                                    | Quebec | Mexico OEL (TWA) | Ontario TWAEV   |
|--|--------|------------------|---|
| Boric acid (H <sub>3</sub> BO <sub>3</sub> ) |        |                  | TWA: 2 mg/m <sup>3</sup><br>STEL: 6 mg/m <sup>3</sup> |

**NIOSH IDLH:** Immediately Dangerous to Life or Health

**Personal Protective Equipment****Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State** Powder Solid  
**Appearance** White  
**odor** odorless

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                  |                           |
|----------------------------------|---------------------------|
| <b>Odor Threshold</b>            | No information available. |
| <b>pH</b>                        | 3.8-4.8 33 g/l aq.sol.    |
| <b>Vapor Pressure</b>            | 2.7 mbar @ 20 °C          |
| <b>Vapor Density</b>             | No information available. |
| <b>Viscosity</b>                 | No information available. |
| <b>Boiling Point/Range</b>       | No information available. |
| <b>Melting Point/Range</b>       | 169°C / 336.2°F           |
| <b>Decomposition temperature</b> | 100 °C                    |
| <b>Flash Point</b>               | No information available. |
| <b>Evaporation Rate</b>          | No information available. |
| <b>Specific Gravity</b>          | No information available. |
| <b>Solubility</b>                | Partly soluble in water   |
| <b>log Pow</b>                   | No data available         |
| <b>Molecular Weight</b>          | 61.83                     |
| <b>Molecular Formula</b>         | H3 B O3                   |

## 10. STABILITY AND REACTIVITY

|   |  |
|---|--|
| <b>Stability</b>                        | Moisture sensitive.  |
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat. Avoid dust formation.<br>Exposure to moisture. |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Strong bases  |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Oxides of boron           |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur  |
| <b>Hazardous Reactions .</b>            | None under normal processing.  |

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

#### Component Information

| Component          | LD50 Oral          | LD50 Dermal           | LC50 Inhalation (Dust) |
|--------------------|--------------------|-----------------------|------------------------|
| Boric acid (H3BO3) | 2660 mg/kg ( Rat ) | 2000 mg/kg ( Rabbit ) | >2.03 mg/L ( Rat ) 4 h |

**Irritation** Irritating to eyes and skin

**Toxicologically Synergistic Products** No information available.

### Chronic Toxicity

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

**ACGIH: (American Conference of Governmental Industrial Hygienists)**

- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

|  |   |
|--|---|
| <b>Sensitization</b>                   | No information available.   |
| <b>Mutagenic Effects</b>               | Mutatagenic effects have occurred in microorganisms.  |
| <b>Reproductive Effects</b>            | Adverse reproductive effects have occurred in humans..  |
| <b>Developmental Effects</b>           | May cause harm to the unborn child. Developmental effects have occurred in experimental animals.                    |
| <b>Teratogenicity</b>                  | Teratogenic effects have occurred in experimental animals..   |
| <b>Other Adverse Effects</b>           | The toxicological properties have not been fully investigated.. See actual entry in RTECS for complete information. |
| <b>Endocrine Disruptor Information</b> | No information available  |

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Do not empty into drains.

| Component          | Freshwater Algae | Freshwater Fish                       | Microtox   | Water Flea               |
|--------------------|------------------|---------------------------------------|------------|--------------------------|
| Boric acid (H3BO3) | Not listed       | Gambusia affinis: LC50: 5600 mg/L/96h | Not listed | 115 - 153 mg/L EC50 48 h |

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available

**Mobility**

| Component          | log Pow |
|--------------------|---------|
| Boric acid (H3BO3) | -0.757  |

**13. DISPOSAL CONSIDERATIONS**

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**14. TRANSPORT INFORMATION**

**DOT** Not regulated

**TDG** Not regulated

## 14. TRANSPORT INFORMATION

**IATA** Not regulated

**IMDG/IMO** Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

| Component          | TSCA | DSL | NDSL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | CHINA | KECL |
|--------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Boric acid (H3BO3) | X    | X   | -    | 233-139-2 | -      |     | X     | X    | X    | X     | X    |

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

**TSCA 12(b)** Not applicable

#### **SARA 313**

Not applicable

#### **SARA 311/312 Hazardous Categorization**

|                                   |     |
|-----------------------------------|-----|
| Acute Health Hazard               | Yes |
| Chronic Health Hazard             | Yes |
| Fire Hazard                       | No  |
| Sudden Release of Pressure Hazard | No  |
| Reactive Hazard                   | No  |

#### **Clean Water Act**

Not applicable

#### **Clean Air Act**

Not applicable

#### **OSHA**

Not applicable

**CERCLA**

Not Applicable

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**State Right-to-Know**

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

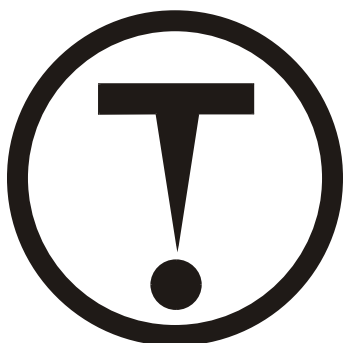
Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**

D2A Very toxic materials  
D2B Toxic materials



**16. OTHER INFORMATION**

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**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of MSDS**