ISO9001 Certified Company

# Material Safety Data Sheet
# Boric acid, ACS

## Section 1 - Chemical Product and Company Identification

**MSDS Name:**
Boric acid, ACS
**Catalog Numbers:**
LC11715
**Synonyms:**
Boracic acid, orthoboric acid, hydrogen borate.
**Company Identification:**
LabChem, Inc.
200 William Pitt Way
Pittsburgh, PA 15238
**Company Phone Number:**
(412) 826-5230
**Emergency Phone Number:**
(800) 424-9300
**CHEMTREC Phone Number:**
(800) 424-9300 or
(011) 703-527-3887

## Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name: | Percent |
|---|---|---|
| 10043-35-3 | Boric acid | 100% |

## Section 3 - Hazards Identification

### Emergency Overview

***Appearance:*** *White powder*
**Warning!** Causes eye, skin, respiratory, and gastrointestinal tract irritation. May cause central nervous system effects. May impair fertility. May cause harm to the unborn child.
***Target Organs:*** Eyes, skin, liver, kidneys, blood, central nervous system, gastrointestinal system, reproductive system.

### Potential Health Effects

**Eye:**
Causes eye irritation.
**Skin:**
Causes skin irritation. May be harmful if absorbed through the skin.
**Ingestion:**
Causes irritation of the digestive tract with nausea, vomiting, and diarrhea. May cause gastric disturbances and electrolytic imbalance. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Poisoning causes a red skin rash with extensive exfoliation, weakness, headache, restlessness, and kidney injury. CNS effects (excitement or depression,

lethargy, headache, coma, seizures), dehydration, arrhythmias, shock, and metabolic acidosis have been reported in extreme adult and pediatric cases.

**Inhalation:**

Causes respiratory tract irritation. May cause central nervous system effects.

**Chronic:**

Prolonged or repeated skin contact may cause dermatitis. Chronic poisoning by boron compounds, borism, may be little more than dry skin and mucous membranes, followed by appearance of a red tongue, patchy alopecia (hair loss), cracked lips, and conjunctivitis. Infants and young children are more susceptible to boric acid poisoning than adults. May cause adverse reproductive effects. May impair fertility. May cause adverse liver and kidney effects.

## Section 4 - First Aid Measures

**Eyes:**

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once.

**Skin:**

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid at once.

**Ingestion:**

Do not induce vomiting. If victim is conscious, give 2-4 glasses of water or milk. Get medical aid at once.

**Inhalation:**

Move victim to fresh air immediately. If breathing is difficult, administer oxygen. Give artificial respiration if necessary, using a mechanical device such as a bag and mask or one-way valve. Get medical aid at once.

**Notes to Physician:**

Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:**

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

**Autoignition Temperature:**

No information found.

**Flash Point:**

No information found.

**NFPA Rating:**

Health- 2, Flammability- 0, Instability- 1

**Explosion Limits:**

Lower: n/a Upper: n/a

## Section 6 - Accidental Release Measures

**General Information:**

Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately. Avoid creating airborne particles. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:**

Wash thoroughly after handling. Do not ingest or inhale. Avoid contact with eyes, skin, and clothing.

**Storage:**

Store capped at room temperature. Protect from heat and incompatibles.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits:**

| Chemical Name: | ACGIH | NIOSH | OSHA |
|---|---|---|---|
| Boric acid | 2 mg/m3 TWA (inhalable fraction, listed under borate compounds, inorganic); 6 mg/m3 STEL (inhalable fraction, listed under borate compounds, inorganic) | none listed | none listed |

**OSHA Vacated PELs:**

Boric acid: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133. Do not wear contact lenses when working with chemicals.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.

**Respirators:**

Follow the OSHA respirator regulations found in 29 CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

## Section 9 - Physical and Chemical Properties

| | |
|---|---|
| **Physical State:** | Solid |
| **Color:** | White |
| **Odor:** | Odorless |
| **pH:** | 3.6-4.0 (4% solution at 25°C) |
| **Vapor Pressure:** | 2.7 mbar @ 20 °C |
| **Vapor Density:** | Not available |
| **Evaporation Rate:** | Negligible |
| **Viscosity:** | Not available |
| **Boiling Point:** | Not available |
| **Freezing/Melting Point:** | 169°C (decomposes) |
| **Decomposition Temperature:** | 169°C |
| **Solubility in water:** | 4.9 g/ 100 g water at 20°C |
| **Specific Gravity/Density:** | 1.44 (Water = 1) |
| **Molecular Formula:** | H3BO3 |
| **Molecular Weight:** | 61.83 |

## Section 10 - Stability and Reactivity

**Chemical Stability:**

Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:**

Incompatible substances, excess heat, dust generation, exposure to moist air or water.

**Incompatibilities with Other Materials:**

Strong oxidizing agents, strong bases.

**Hazardous Decomposition Products:**

Oxides of boron.

**Hazardous Polymerization:**

Has not been reported.

## Section 11 - Toxicological Information

**RTECS:**

CAS# 10043-35-3: ED4550000; ED4560000

**LD50/LC50:**

CAS# 10043-35-3:

Oral, rat: LD50 = 2660 mg/Kg

Skin, rabbit: LD50 = 2000 mg/Kg

Inhalation, rat: LC50 = 0.16 mg/L/4H

**Carcinogenicity:**

CAS# 10043-35-3: Not listed by ACGIH, IARC, NTP, or CA Proposition 65.

**Epidemiology:**

Weakened sexual activity and a low level of genital functions (low sperm counts and motility) were observed in 28 male workers engaged in the production of boric acid. Due to a lack of detailed

description of this observation, its value is limited.

**Teratogenicity:**

Developmental effects were observed in mice, rats, and rabbits after oral administration of boric acid. However, these effects were considered secondary to maternal toxicity (increased liver and kidney weight).

**Reproductive:**

Boric acid was found to induce testicular atrophy and effects on spermatogenesis in rats and mice in various studies. Effects occurred at dose-levels (27 mg/Kg) without general toxicity. Boric acid has selectively damaged the testes, sperm production and fertility in rats and dogs.

**Mutagenicity:**

No information available.

**Neurotoxicity:**

No information available.

## Section 12 - Ecological Information

**Ecotoxicity:**

Water flea Daphnia: LC50 = 115.0-153.0 mg/L; 48 Hr.; Static Condition. Fish: Rainbow trout: LC50 = 150 mg B/ L; 24-day. Goldfish: LC50 = 46 mg B/L; 7-day. Mosquito fish (fresh water): TLm = 1800 ppm/24H

**Environmental:**

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

**Physical:**

No information available.

**Other:**

log Pow = -0.757

## Section 13 - Disposal Considerations

**Dispose of in accordance with Federal, State, and local regulations.**

## Section 14 - Transport Information

**US DOT**

**Shipping Name:** Not regulated.
**Hazard Class:**
**UN Number:**
**Packing Group:**

## Section 15 - Regulatory Information

### US Federal

**TSCA:**
CAS# 10043-35-3 is listed on the TSCA inventory.
**SARA Reportable Quantities (RQ):**
CAS# 10043-35-3 does not have a RQ.
**CERCLA/SARA Section 313:**
Not reportable under Section 313.
**OSHA - Highly Hazardous:**
Not considered highly hazardous by OSHA.

### US State

**State Right to Know:**
CAS# 10043-35-3 is not listed on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
**California Regulations:**
Not listed.

### European/International Regulations

**Canadian DSL/NDSL:**
CAS# 10043-35-3 is listed on Canada's DSL List.
**Canada Ingredient Disclosure List:**
CAS# 10043-35-3 is listed on the Ingredient Disclosure List.

## Section 16 - Other Information

MSDS Creation Date: July 24, 2006
Revision Date: October 11, 2010

*Information in this MSDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc. assumes no liability resulting from the use of this MSDS. The user must determine suitability of this information for his application.*