



MATERIAL SAFETY DATA SHEETS

SECTION I PRODUCT AND COMPANY IDENTIFICATION

Product: Boric acid
This MSDS is valid for all grades and catalog #'s

Synonyms: Not available
Formula: H₃BO₃

Manufacturer: PHARMCO-AAPER
58 Vale Road
Brookfield, Connecticut 06804, USA
Phone (203) 740-3471
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Shelbyville, KY 40065
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Emergency Contact:
CHEMTREC 1-800-424-9300

SECTION II COMPOSITION / INFORMATION ON INGREDIENTS

% by weight	Material	CAS #	TLV/PEL	LC50/LD50
100	Boric acid	10043-35-3	Not available	ORAL (LD50): Acute: 2660 mg/kg [Rat]. 3450 mg/kg [Mouse]

SECTION III HAZARDS IDENTIFICATION

Potential Acute Health Effects: Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Potential Chronic Health Effects: Hazardous in case of skin contact (permeator), of ingestion.

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to gastrointestinal tract, upper respiratory tract, skin, eyes, bones. Repeated or prolonged exposure to the substance can produce target organs damage.

SECTION IV FIRST AID

Obtain medical attention for all cases of over-exposure.

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Hazardous Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Hazardous Inhalation: Not available.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Hazardous Ingestion: Not available.

SECTION V FIRE FIGHTING MEASURES

Fire:

Flammability of the Product: Non-flammable.

Auto-Ignition temperature: Not applicable.

Flash point: Not applicable.

Flammable limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards: Not applicable

Explosion Hazards: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Extinguishing Media: Not applicable.

Special Information: A mixture of potassium and boric acid may explode on impact. A mixture of boric acid and acetic anhydride will explode when heated to 58-60 C

SECTION VI

SPILL/ACCIDENTAL RELEASE MEASURES

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill: Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

SECTION VII

HANDLING AND STORAGE

Precautions: Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

SECTION VIII

EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

SECTION IX

PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance: Solid. (Powdered solid.)

Molecular Weight: 61.83 g/mole

Odor: Odorless.

Taste: Bitter. (Slight.)

Color: White.

pH (1% Solution in Water): 5.2 [Acidic.]

Boiling Point: 300°C (572°F)

Melting Point: 169°C (336.2°F)

Critical Temperature: Not available.

Specific Gravity: 1.435 (Water = 1)

Vapor Pressure (mm Hg): Not applicable.

Vapor Density (Air=1): Not available.

Volatility: Not available.

Odor Threshold: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Water/Oil Dist. Coefficient: Not available.

Ionicity (in water): Not available.

Dispersion Properties: See solubility in water, methanol.

Solubility: Soluble in hot water, methanol. Partially soluble in cold water. Very slightly soluble in acetone.

SECTION X

STABILITY/REACTIVITY INFORMATION

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: High temperatures, dust generation, incompatible materials.

Incompatibilities: Reactive with alkalis.

Corrosivity: Not available

Special Information: Incompatible with Potassium , Acetic Anhydride. Reacts with basic materials to form borate salts.

SECTION XI

TOXICOLOGICAL INFORMATION

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 2660 mg/kg [Rat].

Chronic Effects on Humans: MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, eyes, bones.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Information on Toxicity to Animals: Not available.

Special Information on Chronic Effects/Toxicity on Humans: May cause adverse reproductive effects (fertility, fetotoxicity) based on animal studies. May affect material. May cause teratogenic effects based on animal studies. Acute Potential Health Effects: Skin: May cause skin irritation. It can be absorbed through damaged (broken) or abraded skin in harmful amounts. If absorbed through skin it can cause system effects similar to acute ingestion and affect behavior/central nervous system, sense organs, metabolism, the gastrointestinal tract, and the respiratory tract (respiratory depression) Eyes: Dust causes eye irritation. Inhalation: Dust causes respiratory tract and mucous membrane irritation. Symptoms may include, nasal and throat irritation, dryness of throat, dry or productive cough, nose bleeds, shortness of breath, chest pain/chest tightness Ingestion: Severe and fatal poisonings have rarely been reported following acute ingestion. However acute ingestion can cause digestive/gastrointestinal tract irritation with nausea, vomiting, diarrhea, dehydration. This may be followed by lowered body temperature(hypothermia) or fever (hyperthermia), red skin rash and affects on behavior/brain/Central Nervous System/nervous system (excitement, wakefulness or depression, restlessness, lethargy, weakness, somnolence, headache, dizziness, lightheadedness, drowsiness, nervousness, extreme

irritability, delirium, altered reflexes, confusion, alteration in consciousness (described as "clouded"), convulsions, collapse, unconsciousness, coma), cardiovascular system(hypotension, dysrhythmia, arrhythmias), blood (anemia, leukopenia), liver(hepatomegaly, jaundice, transient elevation in liver function tests), urinary system (kidneys - acute renal failure, oliguria) and endocrine system. Metabolic acidosis, coughing, and cyanosis accompanied by a weak, rapid pulse may also occur. Death may occur from circulatory collapse or shock. Chronic Potential Health Effects: Severe and fatal poisonings are more common following repeated dermal application to abraded or burned skin and chronic ingestion. Boric acid can accumulate in the body (brain, bone) with prolonged or repeated dermal exposure and chronic ingestion. It can cause borism. Borism is a sign of systemic uptake of boron-containing compounds and is characterized by dry skin, skin eruptions, eczema, and gastric disturbances such as nausea, hypermotility, vomiting, and anorexia and weight loss. Prolonged or repeated dermal application and chronic ingestion may also cause other symptoms similar to acute ingestion, and skin absorption. Chronic ingestion may also cause redtongue, patchy alopecia, cracked lips, conjunctivitis. Prolonged or repeated skin contact may also cause dermatitis. Prolonged or repeated inhalation may cause an increase in phlegm production and chronic bronchitis.

SECTION XII ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Information on Products of Biodegradation: Not available

SECTION XIII DISPOSAL CONSIDERATIONS

Waste Disposal: Recycle to process, if possible. Consult your local or regional (State) authorities (waste regulators) to ensure complete and accurate classification. Waste generators must consult with authorities and determine whether a discarded chemical is classified as a hazardous waste. Dispose of in accordance with Federal, State and Local regulations.

SECTION XIV TRANSPORTATION INFORMATION

DOT Classification: DOT Not a DOT controlled material (United States).

UN: Not applicable.

Special Provisions for Transport: Not applicable.

SECTION XV REGULATORY INFORMATION

Federal and State Regulations: Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning MSDS 528, Rev 1.0, 02/08, SJK
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based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are: **NONE**

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are: **NONE**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: **No products were found.**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: **No products were found.**

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36/37/38- Irritating to eyes, respiratory system and skin.

R62- Possible risk of impaired fertility. R63- Possible risk of harm to the unborn child.

Protective Equipment: Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

References: Not available.

Other Special Considerations: Not available.

The information contained herein is based on data considered to be accurate based on the material as packaged. However, no warranty is expressed regarding the accuracy of these data or the results to be obtained from the use thereof. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It is the user's obligation to determine the conditions of safe use of the product. While this MSDS is based on technical data judged to be reliable, PHARMCO-AAPER assumes not responsibility for the completeness or accuracy of the information contained herein.