

EMS CATALOG NO: 11460
EMS PRODUCT: Boric Acid
DATE: 07/12/2008
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MATERIAL SAFETY DATA SHEET

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ELECTRON MICROSCOPY SCIENCES

1560 INDUSTRY ROAD
P.O. BOX 550
HATFIELD, PA 19440
(215) 412-8400

24 HOUR EMERGENCY PHONE NUMBER
CHEMTREC: (800) 424-9300

FOR PRODUCT AND SALES INFORMATION

CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

PRODUCT IDENTIFICATION

PRODUCT NAME: Boric Acid
SYNONYM: Orthoboric Acid, Boracic Acid, Borofax
CAS. NUMBER: 10043-35-3
FORMULA: H₃BO₃
FORMULA WEIGHT: 61.83

INGREDIENTS

INGREDIENTS	CAS #	%	TLV
Boric acid	10043-35-3	98-100	ACGIH (Particulates Not Otherwise Classified) TWA 10 mg/m ³ (inhalable particulate). 3 mg/m ³ (respirable particulate)

TOXICITY VALUES OF THE HAZARDOUS

INGREDIENTS: Boric Acid
ORAL (LD50) Acute 2660 mg/kg (Rat) 3450 mg/kg (Mouse)
DERMAL (LD50) Acute >2000 mg/kg (Rabbit)

PHYSICAL DATA

APPEARANCE/ODOR:	White crystalline powder or crystals. Odorless
pH(1% soln /water):	3.7 (4.7%) 5.1 (1%)
ODOR THRESHOLD:	Not available
PERCENT VOLATILE:	0% at 21°C
FREEZING POINT:	Decomposes @ 185°C
BOILING POINT:	Not Applicable
SPECIFIC GRAVITY:	1.51 (H ₂ O=1)
VAPOR DENSITY:	Not available
VAPOR PRESSURE:	Not available
WATER/OIL DIST. COEFF.:	Log P = 0.7570 at 25°C
EVAPORATE RATE:	Not available
SOLUBILITY:	4.7% @20°C; 27.5% @100°C (in H ₂ O)

FIRE AND EXPLOSION DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMITS:	Not applicable
AUTO IGNITION TEMPERATURE:	Not applicable
FIRE DEGRADATION PRODUCTS:	Boron oxides

FIRE EXTINGUISHING PROCEDURES:

Use extinguishing media suitable for surrounding materials. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode.

FIRE AND EXPLOSION HAZARDS:

The product is not sensitive to impact. The product is not sensitive to static discharge. Emits toxic fumes under fire conditions.

TOXICOLOGICAL PROPERTIES

PRIMARY ROUTE(S) OF ENTRY: Inhalation and ingestion. Eye contact.
Skin absorption.

EFFECTS OF ACUTE EXPOSURE: Harmful by ingestion and inhalation.

EYES: May cause irritation.

SKIN: May cause irritation. Prolonged or repeated contact may cause discomfort and local redness. Repeated contact may cause drying or flaking of skin. Not absorbed through intact skin. Can be absorbed through damaged skin, symptoms same as for ingestion.

INHALATION: Material is irritating to mucous membranes and upper respiratory tract. Exposure can cause coughing, chest pains, difficulty in breathing. See ingestion.

INGESTION: Ingestion of large doses may cause Gastrointestinal distress erythema, muscular rash, weakness, nausea headache, abdominal pain, cyanosis, vomiting, diarrhea dizziness, tachycardia, circulatory collapse and may lead to death. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams.

EFFECTS OF CHRONIC OVEREXPOSURE:

May cause anorexia, vomiting diarrhea, convulsions, anemia. Eye: mild irritant. Reproductive effects: no symptoms have been

noted in humans. Animal studies show that ingestion or large amounts of borates over prolonged periods of time cause a decrease in sperm production and testicle size in male laboratory animals and developmental effects such as weight loss in fetuses of pregnant female laboratory animals. Embryotoxic and/or foetotoxic in animal. Passes through the placental barrier in animal. Excreted in maternal milk in human. Liver, central nervous system and kidney damage. Medical conditions which may be aggravated: Individuals with preexisting diseases of the skin, eye, liver or kidney may be more susceptible to the toxicity of overexposure to this product.

FIRST AID MEASURES

EYE CONTACT: Immediately flush eyes with copious quantities of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention.

SKIN CONTACT:

Immediately flush skin with plenty of water and soap for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reusing.

INHALATION: Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Call a physician.

INGESTION: If conscious, wash out mouth with water. Have conscious person drink several glasses of water to dilute. Seek immediate medical attention. Never give anything by mouth to an unconscious person.

REACTIVITY DATA

STABILITY: Stable.

HAZARDOUS DECOMPOSITION PRODUCTS: Not available.

INCOMPATIBILITY: Alkaline carbonates, reducing agents, potassium,

hydroxides, acetic anhydride, strong bases,
phosphorus, alkalis, sodium, acid anhydrides.
Volatile in stream without decomposition.

REACTION PRODUCTS:

Will dehydrate at 100°C and above. Will create a violent explosion if this product is mixed with potassium, acetic anhydride or with sodium. Boric acid reacts as a weak acid which may cause corrosion of base metals. Solutions can be corrosive to iron. Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosion hazard. Hazardous polymerization will not occur.

PREVENTIVE MEASURES

PROTECTIVE CLOTHING IN CASE OF SPILL AND LEAK:

Wear self contained breathing apparatus, rubber boots and heavy rubber gloves.

SPILL AND LEAK:

Evacuate area. Sweep up and place in container for disposal. Avoid raising dust. Ventilate area and wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch spilled material.

WASTE DISPOSAL: According to all applicable regulations.
Harmful to aquatic life at high concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds or rivers.

STORAGE AND HANDLING:

Store in a cool place away from heated area, sparks and flame. Store in a well ventilated area. Store away from incompatible materials. do not add any other material to the container. Do not wash down the drain. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. Keep container tightly closed and dry. Manipulate in a well ventilated area or under an adequate fume hood. Avoid raising dust. Empty containers may contain a hazardous residue. Handle and open container with care. Minimize dust generation and exposure - use dust mask or appropriate protection. Do not use pressure to dispense. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In

accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. Protect from moisture. Prolonged storage may cause product to cake from atmospheric moisture.

PROTECTIVE MEASURES

PROTECTIVE CLOTHING:

Splash goggles. Impervious gloves, apron, coveralls, and/or other resistant protective clothing. Sufficient to protect skin. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. Do not wear contact lenses. Make eye bath and emergency shower available. If more than TLV, do not breathe vapor. Wear self-contained breathing apparatus.

ENGINEERING CONTROLS:

Local mechanical exhaust ventilation capable of minimizing dust emissions at the point of use. Do not use in unventilated spaces.

OTHER INFORMATION

SPECIAL PRECAUTIONS OR COMMENTS:

HARMFUL SOLID!! REPRODUCTIVE TOXIN!! Do not breathe dust. Avoid all contact with the product. Avoid prolonged or repeated exposure. Manipulate in a well ventilated area or under an adequate fume hood. Handle and open container with care. Container should be opened only by a technically qualified person.

NOTE TO PHYSICIAN:

Observation only is required for adult ingestion of less than 6 grams of Boric acid. For ingestion in excess of 6 grams, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boric acid analysis of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment.

RTECS NO: ED4550000