

MATERIAL SAFETY DATA SHEET

I PRODUCT IDENTIFICATION

Trade Name:	Yttrium Boride	Chemical Nature:	Metal Boride
Molecular Formula:	YB ₆	Molecular Weight:	153.77
CAS#:	12008-32-1		

II HAZARDOUS INGREDIENTS

Hazardous Ingredients: Yttrium Boride%: 100.0% **TLV:** 1 mg/m³ (for yttrium) **OSHA PEL:** 1 mg/m³

III PHYSICAL DATA

Boiling Point 760 mm Hg:	N/D	Vapor Pressure:	N/A
Melting Point:	N/D	Density:	4.13
% Volatiles by Volume:	N/A	Evaporation Rate:	N/D (H ₂ O=1)
Appearance and Odor:	Black powder, no odor	Specific Gravity:	3.68
Reaction With Water:	Decomposes in water with evolution of a mixture of hydrocarbons.		

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point (Method used): N/A (non-flammable) **Autoignition Temperature:** N/A
Flammable Limits: Upper: N/A **Lower:** NA
Extinguishing Media: Use suitable extinguishing media for surrounding material and type of fire.

Special Fire Fighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire & Explosion Hazard: None Recorded

V HEALTH HAZARD INFORMATION

HMIS Hazard Rating: Health: 1 Flammability: 0 Reactivity: 0
Routes of Entry: Inhalation

Effects of Over Exposure (Acute and Chronic):

To the best of our knowledge the chemical, physical and toxicological properties of yttrium boride have not been thoroughly investigated and recorded. yttrium is considered a rare earth metal. These metals are moderately to highly toxic. The symptoms of toxicity of the rare earth elements include writhing, ataxia, labored respiration, walking on the toes with arched back and sedation. Oral or intra-peritoneal doses of 5 to 10 g/kg of dysprosium oxide had no pathological effects in mice and daily doses of 2 g/kg were harmless. Rare earth oxides are much less toxic than chlorides or citrates. The rare earth elements exhibit low toxicity by ingestion exposure. However, the intra-peritoneal route is highly toxic while the subcutaneous route is poison to moderately toxic. The production of skin and lung granulomas after exposure to them requires extensive protection to prevent such exposure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Boron compounds are very toxic and therefore considered an industrial poison. Boron is one of a group of elements, such as Pb, Mn, and As which affects the central nervous system. Boron poisoning causes depression of the circulation, persistent vomiting and diarrhea followed by profound shock and coma. The temperature becomes subnormal and a scarlatina form rash may cover the entire body. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Inhalation: Acute: May cause irritation to the upper respiratory system and mucous membranes.

Chronic: May cause writhing, ataxia, labored respiration, pneumoconiosis, walking on toes with arched back, sedation, pneumoconiosis, hemoglobinemia and lung granulomas.

Ingestion: Acute: May cause gastrointestinal disturbances

Chronic: May cause boron poisoning and act as a blood anticoagulant

Skin: Acute: May cause irritation

Chronic: No chronic health effects recorded

Eye: Acute: May cause irritation

Chronic: No chronic health effects recorded

Target Organs: May affect the blood, lungs and central nervous system

Medical Conditions generally aggravated by exposure: Pre-existing respiratory disorders.

Carcinogenicity: None

Signs and Symptoms of Exposure:

Inhalation: May cause a red, dry throat, congestion, sneezing, and coughing

Ingestion: Boron poisoning may cause: a below normal temperature, poor circulation, vomiting, and diarrhea. May affect the coagulation of the blood

Skin: May cause itching, redness, and burning,

Eyes: May cause redness, itching, burning, and watering.

EMERGENCY AND FIRST AID PROCEDURES:

INGESTION: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. Keep warm and quiet. Get medical attention.

SKIN: Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, seek medical attention.

EYES: Flush eyes with lukewarm water, lifting upper and lower lids for at least 15 minutes. Seek medical attention.

VI REACTIVITY DATA

Stability: Stable

Conditions contributing to instability: None

Incompatibility (Material to Avoid): None recorded

Hazardous Decomposition Products (Thermal and Other): None recorded

Hazardous Polymerization: Will not occur

Conditions to Avoid: Moisture

VII SPILL OR LEAK PROCEDURES

Steps to be taken if Spilled or Released: Wear appropriate respiratory and protective equipment specified in special protection information section. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste Disposal Method: In accordance with Local, State and Federal Waste Disposal Regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): NIOSH approved dust respirator.

Ventilation: Local Exhaust: To maintain conc. at low exposure levels

Special: None

Mechanical(General): Recommended

Other: None

Protective Gloves: neoprene

Eye Protection: goggles

Other Protective Equipment/Practices: Protective gear suitable to prevent contamination.

Work/Hygienic/Maintenance Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

IX SPECIAL PRECAUTIONS

Precautions to be taken in handling and storing: Wash thoroughly after handling. Keep container tightly sealed. Store in a coll, dry area.

Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulation and the Toxic Substances Control Act (TSCA), these materials should only be handled by, or under the direct supervision of, a "technically qualified individual", as defined in 40 CFR 710.2(aa).

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Issued by: S. Dierks

Issue Date: September 1993