



Chemtec: (800) 424-9300
Poison Center: (800) 562-8236
Revision Date: January 8th, 2019

SAFETY DATA SHEET

Identity: Boron Oxide

Formula: B₂O₃

SECTION I - GENERAL INFORMATION

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular weight: 69.92

CAS #	OSHA PEL	ACGIH TLV	%
1303-86-2	15mg/m ³	10mg/m ³	0.0-100.0%

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: 1860°C	Vapor Pressure (vs. air or mmHg): N/A
Melting Point: 450°C	Specific Gravity(H ₂ O=1): 2.46gm/cc
Evaporation Rate: N/A	Flash Point: N/A
Solubility in water: Soluble	

Appearance and odor: Colorless, hygroscopic powder and pieces; no odor; slight bitter taste.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Unknown *Explosive Limits:* LEL: N/A UEL: N/A
Extinguishing Media: Use suitable extinguishing media for surrounding materials 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 and Explosion Hazards:
-Boron oxide may form boric acid on contact with water or moisture.
-Fire and explosion hazard on contact with alkalis.
-When mixed with calcium oxide and placed into calcium chloride the mixture incandescens.



SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (stability): None

Incompatibility: Water, moisture, alkalies, calcium oxide + calcium chloride

Hazardous Decomposition or Byproducts: Boric acid

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

SECTION VI - HEALTH HAZARD DATA

R

oute of entry: Inhalation? Yes Ingestion? Yes Eyes? Yes Skin? Yes Other? No

Boron compounds are very toxic and therefore considered an industrial poison. Boron is one of a group of elements, such as Pb, Mn, As, which effects 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 scarletina form rash may cover the entire body. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: May cause coughing, sneezing, difficulty breathing, erythema, weight loss, dysproteinemia, carbohydrate metabolism disorders, moderate liver and kidney changes and vascular disorders. Boron poisoning may cause: depression of the circulation, persistent vomiting, diarrhea, shock and coma.

Ingestion: May cause weight loss, carbohydrate metabolism disorders, moderate changes in the liver and kidneys, vascular disorders and proteinemia. Boron poisoning may cause: depression of the circulation, persistent vomiting, diarrhea, shock and coma.

Skin: May cause redness, itching, inflammation and burning sensation.

Eye: May cause redness, itching, inflammation, burning sensation and watering.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: DANGER-POISON. May cause irritation to the nose, throat and respiratory tract. May cause boron poisoning.

Chronic: May cause erythema, weight loss, dysproteinemia, carbohydrate metabolism disorders, moderate liver and kidney changes and vascular disorders.

Ingestion:

Acute: DANGER-POISON. May cause irritation to the gastrointestinal tract and boron poisoning.

Chronic: May cause weight loss, carbohydrate metabolism disorders, moderate changes in the liver and kidneys, vascular disorders and proteinemia. May affect the central nervous system.



Skin:

Acute: May cause irritation.

Chronic: May cause erythema and dermatitis.

Eye:

Acute: May cause irritation.

Chronic: May cause conjunctivitis.

Target Organs: May affect the skin, eyes and central nervous system.

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Medical Conditions Aggravated by Exposure: Pre-existing respiratory disorders

Emergency and First Aid Procedures:

Inhalation: Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention

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

Skin: Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. 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:

Dispose of in accordance with state, local, and federal regulations.

Hazard Label Information:

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

-Precautions to be taken in handling: Boron oxide reacts water and moisture. Handle and store in a controlled environment and in an inert gas such as argon.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: To maintain concentration at low exposure levels.

Special: Handle in a closed environment

Mechanical (General): Not recommended.

Other: Handle in an inert gas such as argon



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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 or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established
