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# Material Safety Data Sheet

Revision Date: March, 2009

Identity: Boron Carbide

Formula: B<sub>4</sub>C

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## SECTION I - GENERAL INFORMATION

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

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## SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

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Molecular weight: 55.26

CAS #	OSHA PEL	ACGIH	TLV %
12069-32-8	ND	ND	0.0 - 100.0

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## SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

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Physical States: solid	Vapor Pressure (vs. air or mmHg):NA
Boiling Point: 3500°C	Density: 2.52 g/cm <sup>3</sup>
Melting Point: 2350°C	Flash Point: N/A
Evaporation Rate: NA	
Solubility in water: insoluble	
Appearance and odor: Solid, black, hard crystals and pieces; no odor	

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## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

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Method Used:

Explosive Limits:                   LEL: N/A                   UEL: N/A

Extinguishing Media: Use suitable extinguishing agent 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 and Explosion Hazards:

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## SECTION V – REACTIVITY DATA

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Stability:

Conditions to Avoid (stability): NONE

Materials to Avoid: Molten alkalis

Hazardous Decomposition or Byproducts: Boron oxide

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

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## SECTION VI – HEALTH HAZARD DATA

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Routes of entry:

Inhalation? No                   Skin? No                   Eyes? No                   Ingestion? No

Health Hazards (Acute and Chronic):

Inhalation:

Acute: May cause irritation to the mucous membrane and boron poisoning.

Chronic: No chronic health effects recorded

Ingestion:

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

Chronic: May affect the nervous system

Skin:

Acute: May cause mild irritation

Chronic: No chronic health effects recorded

Eye:

Acute: May cause mild irritation

Chronic: No chronic health effects recorded

Target Organs:

Carcinogenicity:      NTP?                      IARC      Monographs?              OSHA      Regulated?

Medical Conditions Aggravated by Exposure:

Signs and Symptoms of Exposure:

Inhalation: May cause coughing, sneezing and difficulty breathing. Boron poisoning may cause; depression of the circulation, persistent vomiting, diarrhea, shock and coma.

Ingestion: Boron poisoning may cause; depression of the circulation, persistent vomiting, diarrhea, shock and coma.

Skin: May cause redness, itching and burning sensation.

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

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

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## **SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE**

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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 the 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.

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## **SECTION VIII – CONTROL MEASURES**

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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.

Mechanical (General): Recommended.

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**

