

# SPECIALTY MATERIALS, INC.

Manufacturers of Boron and SCS Silicon Carbide Fibers and Boron Nanopowder

## MATERIAL SAFETY DATA SHEET

### Boron Nanopowder and Carbon-doped Boron Nanopowder

----- SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION -----

Product Name: Boron Nanopowder; Carbon-doped Boron Nanopowder

Product Use Description: High purity nano-sized boron powder, with or without dopants, intended for conversion to magnesium diboride and use in superconducting wires

Manufacturer's Name: Specialty Materials, Inc.  
Address: 1449 Middlesex Street  
City, State, and ZIP: Lowell, MA 01851

Emergency Telephone No.: 978-322-1927

Other Information : 978-322-1900

Date Prepared: August 28, 2009

#### HMIS LABEL

HEALTH	1
FIRE	0
REACTIVITY	0
PPE	E

----- SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS -----

Composition: 90 – 99% Boron (CAS No. 7440-42-8)  
0 – 10% Carbon (CAS No. 7440-40-0)

----- SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS -----

Boiling Point: ~ 3900°C

Specific Gravity (H<sub>2</sub>O = 1): 2.32 to 2.34

Vapor Pressure (mm Hg): Negligible

Solubility in Water: Negligible

Reactivity in Water: Negligible

Melting Point: ~ 2150°C

Appearance and Odor: Odorless dark brown to black powder, particle size typically 0.02 to 0.1 μm

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## ----- SECTION 4 - FIRE & EXPLOSION DATA -----

Flash Point: Not Applicable

Flammable Limits in Air  
% by Volume:  
LEL Lower: Not Applicable  
UEL Upper: Not Applicable

Auto-Ignition Temperature: None

Extinguisher Media: Not Applicable

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

## ----- SECTION 5 - PHYSICAL HAZARDS (REACTIVITY DATA) -----

Stability: Unstable ( ) Stable (X)

Conditions to Avoid: Ultra-fine powders are capable of creating a dust explosion

Incompatibility  
(Materials to Avoid): None known

Hazardous Decomposition Products: None known

Hazardous Polymerization: May Occur ( ) Will Not Occur ( X )

Conditions to Avoid: None known

## ----- SECTION 6 - HEALTH HAZARDS -----

Health hazards are associated with short-term irritant effects on the upper respiratory tract, rasopharynx and eye.

1. Acute: Irritating to the skin and eyes on contact. Inhalation may cause irritation to the lungs and mucus membranes.
2. Chronic: No known chronic effects have been identified. However, the long-term effects of ingested powders in the sub-micron range are not well understood at this time.

Signs and Symptoms  
of Exposure: Irritation of Skin or Eyes

Medical Conditions Generally  
Aggravated by Exposure: Dermatitis

Emergency and First  
Aid Procedures: Excessive skin contact may cause irritation. Wash affected areas with water and soap. If eye contact occurs flush with copious amounts of water.

### CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN:

National Toxicology Program: Yes ( ) No (X)

I.A.R.C. Monographs: Yes ( ) No (X)

OSHA: Yes ( ) No (X)

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## ----- SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES -----

Precautions to be taken in Handling and Storage:	Store in air-tight container. Keep away from flame, heat and moisture.
Other Precautions:	Recommend safety glasses.
Steps to be Taken In Case Material Is Released or Spilled:	Collect without dust generation.
Waste Disposal Method (Consult Federal, State, and Local Regulations):	Not a hazardous waste. Dispose in accordance with Federal, State and local regulations.

## -- SECTION 8 - SPECIAL PROTECTION INFORMATION/CONTROL MEASURES --

Respiratory Protection (Specify Type):	Dust respirator when transferring or manipulating this product, or if dust concentration is above threshold limit value.
Ventilation:	As per ACGIH for good quality indoor air, nuisance particulate level is 10 mg/m <sup>3</sup> of total dust or 5 mg/m <sup>3</sup> breathable dust.
Local Exhaust:	Not Applicable
Mechanical (General):	Not Applicable
Protective Gloves:	Recommended (29 CFR 1910.132) latex or nitrile gloves recommended
Eye Protection:	Recommended (29 CFR 1910.133) safety glasses or safety goggles recommended
Other Protective Clothing or Equipment:	Additional Protective Clothing to include Long-Sleeved Garments and Face Shield for High Sensitivity Individuals
Work/Hygienic Practices:	Wash hands thoroughly before Eating or Smoking.

## ----- SECTION 9 - TOXICITY INFORMATION -----

Not considered an industrial poison.

## ----- SECTION 10 - ATTACHMENTS -----

### NOTICE:

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