

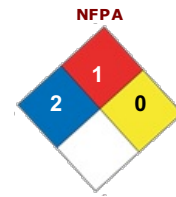


<b>Personal Protective Equipment</b>   Protective Gloves      Safety Glasses	<b>IATA Pictograms</b> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Not Regulated</b> </div>
---	--

## SECTION 1 - IDENTIFICATION

**Product Name:** **Combat Boron Nitride Solids**  
**Product Code:** HP, HPL, M, M26, ZSBN, ZSBNF, Axxxxx (Where x = any digit 0 - 9 OR any letter A - Z, OR blank, Example: AX05), Zxxxxx (Where x = any digit 0 - 9 OR any letter A - Z, OR blank, Example: ZBN60,)

**MSDS Manufacturer Number:** 500  
**Product Use/Restriction:** Not intended for food and drug use.  
**Manufacturer Name:** Saint-Gobain Advanced Ceramics Corporation  
**Address:** Boron Nitride  
 168 Creekside Drive  
 Amherst, NY 14228-2027  
**General Phone Number:** (716) 691-2000  
**General Fax Number:** (716) 691-2090  
**Emergency Phone Number:** 1-800-424-9300 (CHEMTREC)  
**CHEMTREC:** For emergencies in the US, call CHEMTREC: 800-424-9300  
**Canutec:** In Canada, call CANUTEC: (613) 996-6666 (call collect)  
**Website:** www.bn.saint-gobain.com  
**MSDS Creation Date:** July 13, 2009  
**MSDS Revision Date:** January 15, 2013  
**GHS Class:** GHS Category 5



HMIS	
Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	X

## SECTION 2 - HAZARD(S) IDENTIFICATION

**GHS Class:** GHS Category 5  
**Emergency Overview:** CAUTION! Exposure to dust may be irritating to eyes, nose and throat.  
**Route of Exposure:** Eyes. Skin. Inhalation. Ingestion.  
**Potential Health Effects:**

- Eye:** May cause eye irritation.
- Skin:** May cause skin irritation.
- Inhalation:** Inhalation of dusts from this product may cause temporary mechanical irritation of the nose, throat and respiratory tract.
- Ingestion:** Ingestion can cause nausea, vomiting, diarrhea and gastrointestinal irritation.

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
Boron nitride	10043-11-5	30-99 %
Silicon carbide	409-21-2	0-10 %
Silica, amorphous	7631-86-9	0-65 %
Zirconium oxide	1314-23-4	0-60 %
Zirconium boride (ZrB2)	12045-64-6	0-20 %
Boron oxide	1303-86-2	0-10 %
Calcium borate Ca(BO2)2	13701-64-9	0-5 %

## SECTION 4 - FIRST AID MEASURES

**Eye Contact:** Immediately flush eyes with plenty of water for 15 to 20 minutes. Get medical attention, if irritation or symptoms of overexposure persists.  
**Skin Contact:** Immediately wash skin with plenty of soap and water for 15 to 20

minutes, while removing contaminated clothing and shoes.  
Get medical attention if irritation develops or persists.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

**Ingestion:** If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

## SECTION 5 - FIRE FIGHTING MEASURES

**Flammable Properties:** Non Flammable.

**Flash Point:** No information.

**Flash Point Method:** Not applicable.

**Auto Ignition Temperature:** No information.

**Lower Flammable/Explosive Limit:** Not applicable.

**Upper Flammable/Explosive Limit:** Not applicable.

**Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Protective Equipment:** As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

**Hazardous Combustion Byproducts:** Decomposition of this product may yield oxides of boron and nitrogen. Decomposition of boron nitride occurs at 2204 °C (4000 °F).

### **NFPA Ratings:**

**NFPA Health:** 2

**NFPA Flammability:** 1

**NFPA Reactivity:** 0

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

**Personnel Precautions:** Use proper personal protective equipment as listed in section 8.

**Environmental Precautions:** Avoid runoff into storm sewers, ditches, and waterways.

**Methods for containment:** This material will settle out of the air.

**Methods for cleanup:** Shovel or sweep up for re-use or disposal. Avoid creating dusty conditions. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section.

## SECTION 7 - HANDLING and STORAGE

**Handling:** For industrial use only. Handle with care. Avoid dust formation. Do not breathe dust or spray mist.

**Storage:** Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use.

**Hygiene Practices:** Wash thoroughly after handling.

## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

**Engineering Controls:** Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Eye/Face Protection:** Safety glasses with side-shields.

**Skin Protection Description:** Normal work clothing (long sleeved shirt, long pants, and gloves) is recommended.

**Hand Protection Description:** Use impervious gloves.

**Respiratory Protection:** If ventilation is not sufficient to effectively prevent buildup of dusts, appropriate NIOSH respiratory protection must be provided. Consult the NIOSH web site ([http://www.cdc.gov/niosh/npptl/topics/respirators/disp\\_part](http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part)) for a list of dust respirator types and approved suppliers.

**Other Protective:** Follow good industrial hygiene practices when handling this material.

### EXPOSURE GUIDELINES

#### **Silicon carbide :**

**Guideline ACGIH:** TLV-TWA: 0.1 f/cc Respirable fraction (R)

Guideline OSHA:	PEL-TWA: 5 mg/m <sup>3</sup> Respirable fraction (R)
Guideline NIOSH:	REL-TWA: 5 mg/m <sup>3</sup> Respirable fraction (R)
British Columbia Canada :	OEL-TWA: 0.1 f/cc Respirable fraction (R)
Ontario Canada :	OEL-TWAEV: 0.1 f/cc Respirable fraction (R)
Quebec Canada :	VEMP-TWA: 10 mg/m <sup>3</sup> Total particulate/dust (T)
<b>Boron oxide :</b>	
Guideline ACGIH:	TLV-TWA: 10 mg/m <sup>3</sup>
Guideline OSHA:	PEL-TWA: 15 mg/m <sup>3</sup> Total particulate/dust (T)
Guideline NIOSH:	: 2000 mg/m <sup>3</sup>
British Columbia Canada :	OEL-TWA: 10 mg/m <sup>3</sup>
Quebec Canada :	VEMP-TWA: 10 mg/m <sup>3</sup>

## SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State:	Powder.
Color:	White off-white or gray
Odor:	Odorless
Boiling Point:	Not determined.
Melting Point:	Not determined.
Specific Gravity:	1.8 - 3.0
Solubility:	Insoluble in water.
Vapor Density:	Not applicable.
Vapor Pressure:	Not applicable.
Percent Volatile:	Not applicable.
Evaporation Rate:	Not applicable.
Evaporation Point:	Not applicable.
pH:	Not determined.
Molecular Weight:	Mixture
Viscosity:	Not applicable.
Flash Point:	No information.
Flash Point Method:	Not applicable.
Auto Ignition Temperature:	No information.

## SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatible Materials:	This product may react with strong acids or oxidizing agents.
Special Decomposition Products:	Decomposition of this product may yield oxides of boron and nitrogen. Decomposition of boron nitride occurs at 2204 °C (4000 °F).

## SECTION 11 - TOXICOLOGICAL INFORMATION

<b>Boron nitride :</b>	
RTECS Number:	ED7800000
Skin:	Administration onto the skin - Rabbit LD : >20 mL/kg [Details of toxic effects not reported other than lethal dose value]
<b>Silicon carbide :</b>	
RTECS Number:	VW0450000
<b>Silica, amorphous :</b>	
RTECS Number:	EU8655000
Eye:	Eye - Rabbit Standard Draize test.: 25 mg/24H
<b>Zirconium oxide :</b>	
RTECS Number:	ZH8800000
<b>Zirconium boride (ZrB<sub>2</sub>) :</b>	
RTECS Number:	ZH7150000
<b>Boron oxide :</b>	
RTECS Number:	ED7900000
Eye:	Eye - Rabbit Standard Draize test.: 50 mg

Skin: Administration onto the skin - Rabbit Standard Draize test.: 1 gm  
Ingestion: Oral - Rat LD50: 3150 mg/kg [Details of toxic effects not reported other than lethal dose value]  
Oral - Mouse LD50: 3163 mg/kg [Details of toxic effects not reported other than lethal dose value]

## SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No ecotoxicity data was found for the product.  
Environmental Fate: No environmental information found for this product.

## SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of in accordance with Local, State, Federal and Provincial regulations.

## SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated.  
DOT UN Number: Not Regulated.

## SECTION 15 - REGULATORY INFORMATION

Risk Phrases: R36/37/38 - Irritating to eyes, respiratory system and skin.  
Safety Phrase: S22 - Do not breathe dust.  
S37/39 - Wear suitable gloves and eye/face protection.

### **Boron nitride :**

TSCA Inventory Status: Listed  
EINECS Number: 233-136-6  
Canada DSL: Listed  
South Korea KECL: Listed: KECI Number - KE-03535  
Australia AICS: Listed: Assessed by NICNAS: No

### **Silicon carbide :**

TSCA Inventory Status: Listed  
EINECS Number: 206-991-8  
Massachusetts: Listed  
Pennsylvania: Listed  
Canada DSL: Listed  
South Korea KECL: Listed: KECI Number - KE-31031  
Australia AICS: Listed: Assessed by NICNAS: No

### **Silica, amorphous :**

TSCA Inventory Status: Listed  
EINECS Number: 231-545-4  
Massachusetts: Listed  
Pennsylvania: Listed  
Canada DSL: Listed  
Canada IDL: Identified under the Canadian Hazardous Products Act Ingredient Disclosure List: 0.1%.1403(1488)  
South Korea KECL: Listed: KECI Number - KE-31032  
Australia AICS: Listed: Assessed by NICNAS: No

### **Zirconium oxide :**

TSCA Inventory Status: Listed  
EINECS Number: 215-227-2  
Massachusetts: Listed  
Canada DSL: Listed  
South Korea KECL: Listed: KECI Number - KE-35630  
Australia AICS: Listed: Assessed by NICNAS: No

### **Zirconium boride (ZrB<sub>2</sub>) :**

TSCA Inventory Status: Listed

EINECS Number: 234-963-5  
South Korea KECL: Listed: KECI Number - KE-35625  
Australia AICS: Listed: Assessed by NICNAS: No

**Boron oxide :**

TSCA Inventory Status: Listed  
EINECS Number: 215-125-8  
Massachusetts: Listed  
Pennsylvania: Listed  
Canada DSL: Listed  
Canada IDL: Identified under the Canadian Hazardous Products Act Ingredient Disclosure List: 0.1%.205(228)  
South Korea KECL: Listed: KECI Number - KE-09919  
Australia AICS: Listed: Assessed by NICNAS: No

**Calcium borate Ca(BO<sub>2</sub>)<sub>2</sub> :**

TSCA Inventory Status: Listed  
Canada DSL: Listed

---

**SECTION 16 - ADDITIONAL INFORMATION**

---

HMIS Health Hazard: 1  
HMIS Fire Hazard: 1  
HMIS Reactivity: 0  
HMIS Personal Protection: X  
MSDS Creation Date: July 13, 2009  
MSDS Revision Date: January 15, 2013

Copyright© 1996-2011 Actio Corporation. All Rights Reserved.