

Material Safety Data Sheet

Material Name: PDS Boron Nitride Planar Diffusion Sources

ID: MSDS-600

*** Section 1 - Chemical Product and Company Identification ***

Foundry Filter Materials: BNHT, BN975, BN1100, BN1250

Chemical Name: Boron Nitride Solid Article

Product Use: Not intended for food and drug use.

Manufacturer Information

Saint-Gobain Advanced Ceramics

Boron Nitride

168 Creekside Drive

Amherst, NY 14428-2027

Phone: 1-716-691-2052

Fax: 1-716-691-2090

Emergency # 1-703-527-3887 (CHEMTREC)

General Comments

NOTE: CHEMTREC emergency telephone number is to be used in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Substance	Percent
66402-68-4	Ceramic materials and wares, chemicals	100
1303-86-2	Boron oxide (**See NOTE Below)	0-10

Substance Related Regulatory Information

This preparation may be regulated, have exposure limits or other information identified as the following: Nuisance particulates.

Component Information/Information on Non-Hazardous Components

This material is considered an "article" under 29 CFR 1910.1200 (Hazard Communication). The information in this MSDS is provided for situations where this article may be deformed creating dusts or fumes which may be potentially hazardous.

**NOTE: This is not a separate component, it is included in the Ceramic materials and wares. See "Section 11: Toxicological Information" for more information.

*** Section 3 - Hazards Identification ***

Emergency Overview

This is a non-flammable, non-reactive preparation. It is supplied in the form of an odorless, white preshaped solid. This solid is an 'article' and is not expected to result in exposure to a hazardous substance under normal conditions of use. However, during unusual mechanical or thermal processing operations, it may be possible to produce powder, dust, or vapors that are irritating to eyes, skin and respiratory tract and may be harmful if inhaled.

Potential Health Effects: Eyes

Direct contact with powder may cause conjunctivitis. Vapors released during thermal processing may cause eye irritation. Contact with heated material may cause thermal burns.

Potential Health Effects: Skin

Powder may cause irritation to the skin. When heated, preparation can cause thermal burns. Vapors released during thermal processing may cause skin irritation.

Potential Health Effects: Ingestion

Ingestion of this preparation is unlikely. However, ingestion may produce gastrointestinal irritation and disturbances.

Potential Health Effects: Inhalation

Inhalation of dusts/vapors/fumes generated by mechanical or thermal processing may cause respiratory irritation with coughing, choking, shortness of breath and pulmonary edema.

Medical Conditions Aggravated by Exposure

Persons with pre-existing skin disorders, eye irritation, or impaired respiratory function may be more susceptible to the effects of exposure to this preparation.

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HMIS Ratings: Health: 0* Fire: 0 Reactivity: 0 Pers. Prot.: safety glasses, gloves

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Flush immediately with water for at least 15 minutes. Do not rub eyes. If irritation persists get medical attention. If hot product contacts eye, flush with water for at least 15 minutes and seek medical attention immediately.

First Aid: Skin

For skin contact, flush with large amounts of water. If irritation persists, get medical attention. If hot product contacts skin, cool under running water and get medical attention.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

First Aid: Inhalation

Move person to non-contaminated air. If symptoms persist, get medical attention.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not available

Upper Flammable Limit (UFL): Not available

Auto Ignition: Not available

Rate of Burning: Not available

General Fire Hazards

This preparation will not burn.

Hazardous Combustion Products

Decomposition of this preparation may yield oxides of boron and nitrogen. Decomposition of boron nitride occurs above 2000°C

Extinguishing Media

Use methods for the surrounding fire.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.

NFPA Ratings: Health: 0 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Not required.

Clean-Up Procedures

Sweep up or gather material and place in appropriate container for disposal.

Evacuation Procedures

Not required.

Special Procedures

Prior to disposal, consult an approved waste disposal operative to ensure regulatory compliance.

*** Section 7 - Handling and Storage ***

Handling Procedures

If this preparation is processed at temperatures greater than 600° C, do not breathe vapors or fumes. Avoid contact with skin and eyes. Use this preparation with adequate ventilation. Wash thoroughly after handling. Do not reuse the empty container. Not for food and drug use.

Storage Procedures

Store in a cool, dry, well-ventilated area.

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*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

Follow recommended exposure limits.

B: Component Exposure Limits

Ceramic materials and wares, chemicals (66402-68-4)

ACGIH: 10 mg/m³ TWA (inhalable particles, recommended); 3 mg/m³ TWA (respirable particles, recommended) (related to Particulates (insoluble or poorly soluble) not otherwise specified (PNOS))

OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction) (related to Particulates not otherwise regulated)

Boron oxide (1303-86-2)

ACGIH: 10 mg/m³ TWA

OSHA: 10 mg/m³ TWA (total dust)

NIOSH: 10 mg/m³ TWA

Engineering Controls

Ventilation should effectively remove and prevent buildup of any vapor/mist/fume/dust generated from the handling of this preparation.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields.

Personal Protective Equipment: Skin

Wear gloves necessary for type of operation. Use thermal insulating gloves and other clothing as necessary to protect from thermal burns.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material.

*** Section 9 - Physical & Chemical Properties ***

Appearance: White solid
Physical State: Solid
Vapor Pressure: Not applicable
Boiling Point: Not applicable
Solubility (H₂O): Insoluble
Evaporation Rate: Not applicable
Percent Volatile: Not applicable

Odor: Odorless
pH: Not applicable
Vapor Density: Not applicable
Melting Point: Not applicable
Specific Gravity: Not applicable
Viscosity: Not applicable
Molecular Weight: Mixture

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Incompatible materials.

Incompatibility

This preparation may react with strong acids or oxidizing agents.

Hazardous Decomposition

If heated to decomposition, preparation will evolve oxides of boron and nitrogen. Decomposition of boron nitride occurs above 2000°C

Hazardous Polymerization

Will not occur.

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*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

Preparation in powdered form is considered a nuisance dust. Excessive airborne concentrations of nuisance dusts may cause irritation to skin or mucous membranes by chemical or mechanical action. Asthma or chronic respiratory conditions may be aggravated by exposure to this preparation.

Exposure to boron nitride has not been shown to result in boron poisoning. Under normal operating conditions or thermal decomposition, boron nitride has not been shown to liberate free boron. Boron oxide may cause irritation, may alter kidney function, and may produce changes in the blood as a result of occupational exposure. Boron oxide may cause reversible effects that are generally not life threatening.

B: Component Analysis - LD50/LC50

Boron oxide (1303-86-2)

Oral LD50 Mouse: 3163 mg/kg

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Neurotoxicity

Some reports of neurological effects due to boron (ingested by infants as boric acid) have been reported.

Teratogenicity

Chronic ingestion of boron has been reported to cause male and female reproductive damage in experimental animals.

Other Toxicological Information

Under normal conditions of use, the likelihood of inhaling or ingesting amounts necessary for these effects to occur is very small.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Environmental Fate

No information available.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Waste must be handled in accordance with all federal, state, provincial, and local regulations.

*** Section 14 - Transportation Information ***

DOT Information

Shipping Name: Not regulated as a hazardous material.

TDG Information

Shipping Name: Not regulated as dangerous goods for transportation.

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*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

No information available.

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Ceramic materials and wares, chemicals ('related to Nuisance particulates)	66402-68-4	No	No	No	No	No	Yes ¹
Boron oxide	1303-86-2	Yes	Yes	Yes	Yes	Yes	Yes

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Substance	CAS #	Minimum Concentration
Boron oxide	1303-86-2	1 %

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

Substance	CAS #	TSCA	DSL	EINECS
Ceramic materials and wares, chemicals	66402-68-4	Yes	Yes	Yes
Boron oxide	1303-86-2	Yes	Yes	Yes

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. AICS = Australian Inventory of Chemical Substances. CAS = Chemical Abstract Service. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. CHEMTREC = Chemical Transportation Emergency Center. DSL = Canadian Domestic Substance List. EINECS = European Inventory of New and Existing Chemical Substances. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Materials Identification System. IARC = International Agency for Research on Cancer. IDLH = Immediately Dangerous to Life and Health. NDSL = Canadian Non-Domestic Substance List. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TDG = Transportation of Dangerous Goods. TLV = Threshold Limit Value. TSCA = Toxic Substances Control Act. WHMIS = Workplace Hazardous Materials Information System.

Contact: Technical Service

Contact Phone: (716) 691-2052

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This is the end of MSDS # MSDS-600