



## Safety Data Sheet

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<b>Document Group:</b>	36-2484-8	<b>Version Number:</b>	1.04
<b>Issue Date:</b>	01/03/24	<b>Supersedes Date:</b>	05/23/19

### SECTION 1: Identification

#### 1.1. Product identifier

3M Boron Nitride Powder Grades S1-F, S1-SF

#### Product Identification Numbers

CY-9990-0915-2, CY-9990-0916-0, CY-9990-0917-8, UU-0092-7277-2  
7010251918, 7010252870, 7010240141, 7100152132

#### 1.2. Recommended use and restrictions on use

##### Recommended use

Industrial use

#### 1.3. Supplier's details

<b>MANUFACTURER:</b>	3M
<b>DIVISION:</b>	3M Germany Advanced Materials Division
<b>ADDRESS:</b>	3M Center, St. Paul, MN 55144-1000, USA
<b>Telephone:</b>	1-888-3M HELPS (1-888-364-3577)

#### 1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

### SECTION 2: Hazard identification

#### 2.1. Hazard classification

Reproductive Toxicity: Category 1B.

#### 2.2. Label elements

##### Signal word

Danger

##### Symbols

Health Hazard |

##### Pictograms

**Hazard Statements**

May damage fertility or the unborn child.

**Precautionary Statements****Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wear protective gloves.

**Response:**

IF exposed or concerned: Get medical advice/attention.

**Storage:**

Store locked up.

**Disposal:**

Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

### SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Hexagonal boron nitride	10043-11-5	95 - 100
BORON OXIDE	1303-86-2	< 0.3

### SECTION 4: First aid measures

**4.1. Description of first aid measures****Inhalation:**

Remove person to fresh air. If you feel unwell, get medical attention.

**Skin Contact:**

Wash with soap and water. If signs/symptoms develop, get medical attention.

**Eye Contact:**

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

**If Swallowed:**

Rinse mouth. If you are concerned, get medical advice.

**4.2. Most important symptoms and effects, both acute and delayed**

No critical symptoms or effects. See Section 11.1, information on toxicological effects.

**4.3. Indication of any immediate medical attention and special treatment required**

Not applicable.

### SECTION 5: Fire-fighting measures

**5.1. Suitable extinguishing media**

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

**5.2. Special hazards arising from the substance or mixture**

None inherent in this product.

**Hazardous Decomposition or By-Products****Substance**

Carbon monoxide

Carbon dioxide

Toxic Vapor/Gas

**Condition**

During Combustion

During Combustion

During Combustion

**5.3. Special protective actions for fire-fighters**

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

**6.2. Environmental precautions**

Avoid release to the environment.

**6.3. Methods and material for containment and cleaning up**

Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use personal protective equipment (gloves, respirators, etc.) as required.

**7.2. Conditions for safe storage including any incompatibilities**

No special storage requirements.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational exposure limits**

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

<b>Ingredient</b>	<b>C.A.S. No.</b>	<b>Agency</b>	<b>Limit type</b>	<b>Additional Comments</b>
BORON OXIDE	1303-86-2	ACGIH	TWA:10 mg/m3	
BORON OXIDE	1303-86-2	OSHA	TWA(as total dust):15 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

## 8.2. Exposure controls

### 8.2.1. Engineering controls

Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

### 8.2.2. Personal protective equipment (PPE)

#### Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

#### Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Gloves made from the following material(s) are recommended: Nitrile Rubber

#### Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

Half facepiece or full facepiece air-purifying respirator suitable for particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

Physical state

Solid

Color

White

Specific Physical Form:

Fine Powder (less than 10 microns)

Odor

Odorless

Odor threshold

*No Data Available*

pH

*Not Applicable*

Melting point

*Not Applicable*

Boiling Point

*No Data Available*

Flash Point

No flash point

Evaporation rate

*No Data Available*

Flammability (solid, gas)

Not Classified

Flammable Limits(LEL)

$\geq 3000$  g/m<sup>3</sup> [*Details: EN 14034-3*]

Flammable Limits(UEL)

*No Data Available*

Vapor Pressure

*Not Applicable*

Vapor Density	No Data Available
Density	2.25 g/cm <sup>3</sup> [@ 20 °C] [Details:reference pressure 1013 hPa]
Specific Gravity	No Data Available
Solubility In Water	<=0.162 mg/l [Test Method:UN Method]
Solubility- non-water	<=0.000162 g/l
Partition coefficient: n-octanol/ water	No Data Available
Autoignition temperature	No Data Available
Decomposition temperature	2730 °C
Viscosity	Not Applicable
Molecular weight	Not Applicable
Volatile Organic Compounds	No Data Available
Percent volatile	No Data Available
VOC Less H <sub>2</sub> O & Exempt Solvents	No Data Available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

This material is considered to be non reactive under normal use conditions.

### 10.2. Chemical stability

Stable.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

None known.

### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
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None known.

Refer to section 5.2 for hazardous decomposition products during combustion.

## SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

### 11.1. Information on Toxicological effects

#### Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

#### Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

**Skin Contact:**

Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

**Eye Contact:**

Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

**Ingestion:**

May cause additional health effects (see below).

**Additional Health Effects:****Reproductive/Developmental Toxicity:**

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

**Toxicological Data**

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

**Acute Toxicity**

Name	Route	Species	Value
Hexagonal boron nitride	Dermal	Rabbit	LD50 > 20,000 mg/kg
Hexagonal boron nitride	Ingestion	Rat	LD50 > 50,000 mg/kg
BORON OXIDE	Dermal	Rabbit	LD50 > 2,000 mg/kg
BORON OXIDE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.12 mg/l
BORON OXIDE	Ingestion	Rat	LD50 3,450 mg/kg

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

Name	Species	Value
BORON OXIDE	Rabbit	No significant irritation

**Serious Eye Damage/Irritation**

Name	Species	Value
BORON OXIDE	Rabbit	Mild irritant

**Skin Sensitization**

Name	Species	Value
BORON OXIDE	Guinea pig	Not classified

**Respiratory Sensitization**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Germ Cell Mutagenicity**

Name	Route	Value
BORON OXIDE	In Vitro	Not mutagenic
BORON OXIDE	In vivo	Not mutagenic

**Carcinogenicity**

Name	Route	Species	Value
BORON OXIDE	Ingestion	Mouse	Not carcinogenic

**Reproductive Toxicity**

**Reproductive and/or Developmental Effects**

Name	Route	Value	Species	Test Result	Exposure Duration
BORON OXIDE	Ingestion	Toxic to female reproduction	Rat	NOAEL 100 mg/kg/day	3 generation
BORON OXIDE	Ingestion	Toxic to male reproduction	Rat	NOAEL 100 mg/kg/day	3 generation
BORON OXIDE	Ingestion	Toxic to development	Rabbit	NOAEL 125 mg/kg/day	during organogenesis

**Target Organ(s)****Specific Target Organ Toxicity - single exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
BORON OXIDE	Inhalation	respiratory irritation	Not classified	Human	NOAEL Not available	occupational exposure
BORON OXIDE	Ingestion	nervous system	Not classified	Rat	NOAEL 2,000 mg/kg	

**Specific Target Organ Toxicity - repeated exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
BORON OXIDE	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 100 mg/kg/day	2 years
BORON OXIDE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 400 mg/kg/day	45 days
BORON OXIDE	Ingestion	heart   endocrine system   bone, teeth, nails, and/or hair   liver   nervous system   respiratory system	Not classified	Rat	NOAEL 334 mg/kg/day	2 years

**Aspiration Hazard**

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

**SECTION 12: Ecological information****Ecotoxicological information**

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

**Chemical fate information**

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

**SECTION 13: Disposal considerations****13.1. Disposal methods**

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste

incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

**SECTION 14: Transport Information**

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

**SECTION 15: Regulatory information**

**15.1. US Federal Regulations**

Contact 3M for more information.

**EPCRA 311/312 Hazard Classifications:**

**Physical Hazards**

Not applicable

**Health Hazards**

Reproductive toxicity

**15.2. State Regulations**

Contact 3M for more information.

**15.3. Chemical Inventories**

The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Industrial Safety and Health Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

**15.4. International Regulations**

Contact 3M for more information.



This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SECTION 16: Other information

### NFPA Hazard Classification

**Health:** 1 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

<b>Document Group:</b>	36-2484-8	<b>Version Number:</b>	1.04
<b>Issue Date:</b>	01/03/24	<b>Supersedes Date:</b>	05/23/19

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