

## SAFETY DATA SHEET

Date: June 2015

### Section #1: PRODUCT AND COMPANY IDENTIFICATION

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Product Identification: Abrasive Powder  
Product Name: Boron Carbide Abrasive Powder  
Product Use: Boron Carbide Abrasive Powder for Component Lapping

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the Substance or Mixture

##### Classification (GHS-US)

Comb. Dust  
Acute Tox. 4 (Inhalation:dust,mist) H332  
Repr. 1B H360

#### 2.2. Label Elements

##### GHS-US Labeling

##### Hazard Pictograms (GHS-US)



##### Signal Word (GHS-US)

##### Hazard Statements (GHS-US)

##### Precautionary Statements (GHS-US)

: Danger  
: Comb. Dust - May form combustible dust concentrations in air  
H332 - Harmful if inhaled  
H360 - May damage fertility or the unborn child (oral)  
: P201+P405 - Obtain special instructions before use. Store locked up.  
P202 - Do not handle until all safety precautions have been read and understood.  
P271+P261 - Use only outdoors or in a well-ventilated area. Avoid breathing dust.  
P280 - Wear eye protection, protective clothing, protective gloves.  
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P308+P313 - If exposed or concerned: Get medical advice/attention.  
P501 - Dispose of contents/container according to local, regional, national, and international regulations.

#### 2.3. Other Hazards

**Other Hazards Not Contributing to the Classification:** Contact with particles may cause mechanical irritation of the skin with itching, redness, swelling, or rash; or irritation of the eyes with tearing, pain, or blurring of vision. Inhalation of dried-down material may cause irritation of the upper respiratory passages.

#### 2.4. Unknown Acute Toxicity (GHS-US) Not applicable

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Substance Not applicable

#### 3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Boron carbide (B4C)	(CAS No) 12069-32-8	>= 89	Comb. Dust Acute Tox. 4 (Inhalation:dust,mist), H332

# BORON CARBIDE POWDER

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Name	Product identifier	%	Classification (GHS-US)
Nitrogen	(CAS No) 7727-37-9	<= 2	Simple Asphy Compressed gas, H280
Boron oxide (B2O3)	(CAS No) 1303-86-2	<= 1	Repr. 1B, H360
Oxygen	(CAS No) 7782-44-7	<= 1	Ox. Gas 1, H270 Compressed gas, H280
Iron	(CAS No) 7439-89-6	<= 0.3	Flam. Sol. 1, H228 Self-heat. 1, H251
Silicon	(CAS No) 7440-21-3	<= 0.3	Comb. Dust

Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First Aid Measures

**First-aid Measures General:** If you feel unwell, seek medical advice (show the label where possible).

**First-aid Measures After Inhalation:** Using proper respiratory protection, move the exposed person to fresh air at once. Encourage victim to cough, spit out, and blow nose to remove dust. Immediately call a poison center or physician.

**First-aid Measures After Skin Contact:** Remove contaminated clothing. Rinse affected area with water for at least 5 minutes. Obtain medical attention if irritation persists.

**First-aid Measures After Eye Contact:** Rinse with water for 5 minutes. Remove contact lenses, if present. Continue rinsing.

**First-aid Measures After Ingestion:** Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

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

**Symptoms/Injuries:** Dust is harmful if inhaled. May be harmful if swallowed.

**Symptoms/Injuries After Inhalation:** Dust is harmful if inhaled. Dust may cause irritation to the respiratory tract.

**Symptoms/Injuries After Skin Contact:** Prolonged contact with dust may cause mechanical irritation.

**Symptoms/Injuries After Eye Contact:** May cause eye irritation.

**Symptoms/Injuries After Ingestion:** May be harmful if swallowed.

**Chronic Symptoms:** Long term inhalation of dust may cause Pneumoconiosis (Black lung disease), which causes shortness of breath that gets progressively worse and may result in lung damage. If ingested, may cause reproductive harm.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO<sub>2</sub>).

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Emits toxic fumes under fire conditions.

**Explosion Hazard:** Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.

### 5.3. Advice for Firefighters

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Do not breathe dust. Do not get in eyes, on skin, or on clothing. Keep away from open flames, hot surfaces and sources of ignition. No smoking.

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel. Eliminate ignition sources. Ventilate area. If possible, stop flow of product.

**6.2. Environmental Precautions** No additional information available

### 6.3. Methods and Material for Containment and Cleaning Up

**Methods for Cleaning Up:** Avoid generation of dust during clean-up of spills. Use only non-sparking tools.

**6.4. Reference to Other Sections** See heading 8, Exposure Controls and Personal Protection.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

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**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use.

**Incompatible Products:** Strong acids. Strong bases. Strong oxidizers.

### 7.3. Specific End Use(s) Lapping/Grinding/Polishing

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

Boron oxide (B2O3) (1303-86-2)		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
USA IDLH	US IDLH (mg/m <sup>3</sup> )	2000 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Silicon (7440-21-3)		
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>

### 8.2. Exposure Controls

**Appropriate Engineering Controls** : Provide adequate ventilation to minimize dust concentrations. Take precautionary measures against static discharges. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

**Personal Protective Equipment** : Gloves. Safety glasses. Dust formation: dust mask.



**Hand Protection** : Impermeable protective gloves.

**Eye Protection** : Chemical goggles or safety glasses.

**Skin and Body Protection** : Wear suitable protective clothing.

**Respiratory Protection** : A respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2-1992 or MSHA 30 CFR 72.710 must be followed when conditions warrant respirator use.

**Other Information** : When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Black granular material or powder; Particle size: ~1 micron to 1200 mesh
Odor	: Odorless
Odor Threshold	: No data available
pH	: No data available
Relative Evaporation Rate (butylacetate=1)	: No data available
Melting/Freezing Point	: 2450 °C (4442 °F)
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20 °C	: No data available
Relative Density	: 2.51 (water = 1)
Density	: 2.51 g/cm <sup>3</sup>
Solubility	: Insoluble.
Partition coefficient: n-octanol/water	: No data available
Viscosity	: No data available

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### 9.2. Other Information No additional information available

## SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:** Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.
- 10.2 Chemical Stability:** The product is stable at normal handling and storage conditions.
- 10.3 Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4 Conditions to Avoid:** Avoid creating or spreading dust. Sparks, heat, open flame and other sources of ignition.
- 10.5 Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers.
- 10.6 Hazardous Decomposition Products:** Carbon oxides (CO, CO<sub>2</sub>). Oxides of boron.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information On Toxicological Effects

**Acute Toxicity:** Harmful if inhaled.

<b>Boron oxide (B2O3) (1303-86-2)</b>	
<b>ATE (Oral)</b>	3150.000 mg/kg

**Skin Corrosion/Irritation:** Not classified

**Serious Eye Damage/Irritation:** Not classified

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive Toxicity:** May damage fertility or the unborn child (oral).

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Dust is harmful if inhaled. Dust may cause irritation to the respiratory tract.

**Symptoms/Injuries After Skin Contact:** Prolonged contact with dust may cause mechanical irritation.

**Symptoms/Injuries After Eye Contact:** May cause eye irritation.

**Symptoms/Injuries After Ingestion:** May be harmful if swallowed.

**Chronic Symptoms:** Long term inhalation of dust may cause Pneumoconiosis (Black lung disease), which causes shortness of breath that gets progressively worse and may result in lung damage. If ingested, may cause reproductive harm.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

<b>Boron oxide (B2O3) (1303-86-2)</b>	
<b>EC50 Daphnia 1</b>	370 - 490 mg/l (Exposure time: 48 h - Species: Daphnia magna)

**12.2. Persistence and Degradability** Not established

**12.3. Bioaccumulative Potential** Not established

**12.4. Mobility in Soil** No additional information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste Disposal Recommendations:** Dispose of waste according to all local, regional, national, and international regulations.

## SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/IMDG/DOT

**14.1. UN Number** Not regulated for transport

**14.2. UN Proper Shipping Name** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

### 15.1 US Federal Regulations

<b>BORON CARBIDE POWDER UK\B4C</b>	
<b>SARA Section 311/312 Hazard Classes</b>	Delayed (chronic) health hazard, Immediate (acute) health hazard, Fire hazard
<b>Boron carbide (B4C) (12069-32-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Boron oxide (B2O3) (1303-86-2)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Iron (7439-89-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Oxygen (7782-44-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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<b>Nitrogen (7727-37-9)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory
<b>Silicon (7440-21-3)</b>
Listed on the United States TSCA (Toxic Substances Control Act) inventory
<b>15.2 US State Regulations</b>
<b>Boron oxide (B2O3) (1303-86-2)</b>
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
<b>Iron (7439-89-6)</b>
U.S. - Massachusetts - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs) U.S. - New Jersey - Secondary Drinking Water Standards - Recommended Upper Limits (RULs) U.S. - New Jersey - Water Quality - Ground Water Quality Criteria and Water Quality - Practical Quantitation Levels (PQLs) U.S. - Pennsylvania - Drinking Water - Secondary Maximum Contaminant Levels (SMCLs)
<b>Oxygen (7782-44-7)</b>
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity and Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
<b>Nitrogen (7727-37-9)</b>
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity and Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
<b>Silicon (7440-21-3)</b>
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List and Special Health Hazards Substances List U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: OTHER INFORMATION, INCLUDING DATA ON DATE OF PREPARATION OR LAST REVISION

### THIS PRODUCT IS CERTIFIED TO BE RoHS COMPLIANT

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