

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA
GHS

Revision: 15 November 2017

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

· 1.1 Product identifier

· **Trade name: Combat Boron Nitride Solids and Composites**

· **Product code:**

HP, HPL, SiZBN, ZSBN, ZSBNF

ASxxxxx, Pxxxxxx, Cxxxxxx, IDLxxxx, XSxxxxx

(Where x = any digit 0 – 9, OR any letter A – Z, OR blank. Example: XSxxxxxx = XS1314B)

· 1.2 Relevant identified uses of the substance or mixture and uses advised against

· **Application of the substance / the mixture:** Industrial uses.

· **Uses advised against:** Not intended for food and drug use.

· 1.3 Details of the supplier of the Safety Data Sheet

· **Manufacturer/Supplier:**

Saint-Gobain Advanced Ceramics LLC Boron Nitride

168 Creekside Drive

Amherst, NY 14228-2027

USA

Telephone: 716-691-2000

Fax: 716-691-2090

E-mail: BNSales@saint-gobain.com

Only Representative:

Saint-Gobain Coating Solutions

50 Rue du Mourelet, BP 90966

Avignon 84093

France

Telephone: +33 (0) 4 90 85 85 00

Fax: +33 (0) 4 90 82 94 52

E-mail: qehs.coating-solutions@saint-gobain.com

· 1.4 Emergency telephone number:

CHEMTREC

1-800-424-9300 (US/Canada)

+01 703-527-3887 (International)

London, Medical Toxicology and Information Service Ltd (MTIS)

Tel (24 hour): 020 7188 0300

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture

· **Classification according to Regulation (EC) No 1272/2008**

Classifications listed are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).

May form combustible dust concentrations in air. (USA and Canada GHS Only)

The product is not classified as hazardous according to the CLP regulation.

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2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the Globally Harmonized System within the United States.

The product is not classified as hazardous according to the CLP regulation.

· **Hazard pictograms** Not Regulated

· **Signal word**

Not applicable within the EU; applicable only for North America.

Warning

· **Hazard statements** May form combustible dust concentrations in air. (USA and Canada GHS Only)

· **Additional information:**

Read the label and safety data sheet before use. Prevent dust accumulations to minimize explosion hazard. Keep away from all ignition sources including heat, sparks and flame.

Safety data sheet available on request.

2.3 Other hazards

May form explosible dust-air mixture if dispersed.

There are no other hazards not otherwise classified that have been identified.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients**3.2 Mixtures**· **Components:**

CAS: 10043-11-5 EINECS: 233-136-6 Reg.nr.: 01-2119947399-20-0003	boron nitride	30-99%
CAS: 7631-86-9 EINECS: 231-545-4 Reg.nr.: 01-2119379499-16-XXXX	silicon dioxide substance with a Community workplace exposure limit	0-65%
CAS: 1314-23-4 EINECS: 215-227-2 Reg.nr.: 01-2119486976-14-XXXX	zirconium dioxide substance with a Community workplace exposure limit	0-60%
CAS: 112760-32-4	Silica aluminum nitride	0-30%
CAS: 409-21-2 EINECS: 206-991-8 Reg.nr.: 01-2119402892-42-XXXX	silicon carbide substance with a Community workplace exposure limit	0-10%
CAS: 12045-64-6 EINECS: 234-963-5	zirconium diboride ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	0-5%
CAS: 13701-64-9 EINECS: 237-224-5	diboron calcium tetraoxide ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	0-5%
CAS: 1314-36-9	yttrium oxide	0-5%

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EINECS: 215-233-5 Reg.nr.: 01-2119971254-36-XXXX	substance with a Community workplace exposure limit	
CAS: 1303-86-2 EINECS: 215-125-8 Index number: 005-008-00-8	diboron trioxide  Repr. 1B, H360FD	≤3.1%

· **SVHC**

1303-86-2 | diboron trioxide

· **Additional information:** For the wording of the listed Hazard Statements refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **After inhalation:**

Supply fresh air; consult doctor in case of complaints.
Provide oxygen treatment if affected person has difficulty breathing.
In case of irregular breathing or respiratory arrest provide artificial respiration.
If experiencing respiratory symptoms: Call a doctor.

· **After skin contact:**

Brush off loose particles from skin.
Immediately rinse with water.
Seek medical treatment in case of complaints.

· **After eye contact:**

Remove contact lenses if worn, if possible.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.

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

Breathing difficulty
Coughing
Nausea in case of ingestion.
Gastric or intestinal disorders when ingested.
Diarrhea.
Vomiting.
Slight irritant effect on eyes.
Slight irritant effect on skin and mucous membranes.

· **Hazards:** May be harmful if swallowed, in contact with skin or if inhaled.

· **4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:**

Water spray
Foam

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Carbon dioxide

Gaseous extinguishing agents

- **For safety reasons unsuitable extinguishing agents:** Water with full jet

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

May form combustible dust concentrations in air.

Formation of toxic gases is possible during heating or in case of fire.

- **5.3 Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation

Avoid formation of dust.

Do not breathe dust.

For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

- **6.2 Environmental precautions**

Avoid release to the environment.

Damp down dust with water spray.

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

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

- **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**

Use only in well ventilated areas.

Prevent formation of dust.

Any unavoidable deposit of dust must be regularly removed.

Use personal protective equipment as required.

Avoid contact with the eyes and skin.

Avoid breathing dust.

- **Information about fire - and explosion protection:**

Dust can combine with air to form an explosive mixture.

Avoid dust cloud formation. Keep ignition sources away. No smoking.

Protect against electrostatic charges.

- **7.2 Conditions for safe storage, including any incompatibilities**

- **Storage:**

- **Requirements to be met by storerooms and receptacles:**

Storage area should be dry and well-ventilated.

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- Avoid storage near extreme heat, ignition sources or open flame.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:

7631-86-9 silicon dioxide

NIOSH REL (USA)	Long-term value: 6 mg/m ³
OSHA PEL (USA)	Long-term value: 80 mg/m ³

1314-23-4 zirconium dioxide

WEL (Great Britain)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
PEL (USA)	Long-term value: 5 mg/m ³ as Zr
REL (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
TLV (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr

409-21-2 silicon carbide

WEL (Great Britain)	Long-term value: 10* 4** mg/m ³ *total inhalable **respirable
PEL (USA)	Long-term value: 15* 5** mg/m ³ fibrous dust: *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	Long-term value: 10* 3** mg/m ³ fibrous dust:0,1 f/cc; nonfibrous:*inh., **resp.

1303-86-2 diboron trioxide

WEL (Great Britain)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³
PEL (USA)	Long-term value: 15* mg/m ³ *total dust
REL (USA)	Long-term value: 10 mg/m ³
TLV (USA)	Long-term value: 10 mg/m ³

1314-36-9 yttrium oxide

PEL (USA)	Long-term value: 1 mg/m ³ as Y
REL (USA)	Long-term value: 1 mg/m ³

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TLV (USA)

as Y
Long-term value: 1 mg/m³
as Y

- **DNELs:** No further relevant information available.
- **PNECs:** No further relevant information available.

· 8.2 Exposure controls

- **Engineering measures** No special measures required.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Do not breathe dust.

Avoid contact with the eyes and skin.

Pregnant women should strictly avoid inhalation or skin contact.

· **Respiratory protection:**

An EU approved dust respirator should be used for operations generating dust.

Particulate mask should filter at least 99% of airborne particles.

· **Protection of hands:**



Protective gloves

· **Eye protection:**



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:** Avoid release to the environment.
- **Risk management measures:** No further relevant information available.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· **Appearance**

Form: Solid
Colour: White
Whitish
Grey

· **Odour:** Odourless

· **Odour threshold:** Not determined.

· **pH-value:** Not applicable.

· **Melting point/freezing point:** Not determined.

· **Initial boiling point and boiling range:** Not determined.

· **Flash point:** Not applicable.

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· Flammability (solid, gas):	May form combustible dust concentrations in air.
· Auto/Self-ignition temperature:	Not applicable.
· Decomposition temperature:	2204 °C (3.999,2 °F) (boron nitride)
· Explosive properties:	Can pose a dust explosion hazard if dispersed in air.
· Explosion limits	
Lower:	Not determined.
Upper:	Not determined.
· Oxidising properties	Non-oxidising.
· Vapour pressure:	Not applicable.
· Density:	
Relative density:	1,8-3,0
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.
· Solubility in / Miscibility with water:	Insoluble.
· Partition coefficient: n-octanol/water:	Not applicable.
· Viscosity	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**
Risk of dust explosion if enriched with fine dust in the presence of air.
Reacts with strong oxidising agents.
Reacts with strong acids.
- **10.4 Conditions to avoid** Prevent formation of dust.
- **10.5 Incompatible materials**
Strong acids.
Oxidisers
- **10.6 Hazardous decomposition products** Nitrogen oxides

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**

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- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **LD/LC50 values relevant for classification:** None.
- **Primary irritant effect**
- **Skin corrosion/irritation:** Slight irritant effect on skin and mucous membranes.
- **Serious eye damage/irritation:** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

- **NTP (National Toxicology Program):**

None of the ingredients are listed.

- **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

- **Probable routes of exposure:**

Ingestion.
Inhalation.
Eye contact.
Skin contact.

- **Acute effects (acute toxicity, irritation and corrosivity):**

May be harmful if swallowed, in contact with skin or if inhaled.

- **Repeated dose toxicity:**

Long-term inhalation of silica dusts may cause obstructive pulmonary disease including silicosis.

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

- **Carcinogenicity:** Based on available data, the classification criteria are not met.

- **Reproductive toxicity:** Based on available data, the classification criteria are not met.

- **STOT-single exposure:** Based on available data, the classification criteria are not met.

- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

- **Aspiration hazard:** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **12.2 Persistence and degradability** No further relevant information available.

- **12.3 Bioaccumulative potential** No further relevant information available.

- **12.4 Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:** Avoid release to the environment.

- **12.5 Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

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- **13.1 Waste treatment methods**

- **Recommendation**

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

- **Uncleaned packaging:**

- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- **14.1 UN-Number**

- DOT, ADR, IMDG, IATA Not Regulated

- **14.2 UN proper shipping name**

- DOT, ADR, IMDG, IATA Not Regulated

- **14.3 Transport hazard class(es)**

- DOT, ADR, IMDG, IATA

- Class

Not Regulated

- Label

-

- **14.4 Packing group**

- DOT, ADR, IMDG, IATA Not Regulated

- **14.5 Environmental hazards:**

- Marine pollutant: No

- **14.6 Special precautions for user**

Not applicable.

- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

- United States (USA)

- SARA

- **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

- **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed or exempt.

- **Proposition 65 (California):**

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· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

10043-11-5	boron nitride	I (oral)
1303-86-2	diboron trioxide	I (oral)

· **IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL)**

All ingredients listed on DSL or NDSL.

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**

1303-86-2 | diboron trioxide

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H302 Harmful if swallowed.
 H312 Harmful in contact with skin.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H360FD May damage fertility. May damage the unborn child.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances

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CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bio-accumulable, Toxique

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Repr. 1B: Reproductive toxicity – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Sources

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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