

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) revised in 2012 and GHS Rev 03.

Issue date 01/25/2021

Reviewed on 01/25/2021

1 Identification

- **Product Identifier**
- **Trade Name: BoronPlus® (GS126, 93XX; GS-139, 90XX; GS-183, 91XX; GS-245, 92XX; GS-278, 94XX)**
- **Relevant identified uses of the substance or mixture and uses advised against:**
- **Product Description:** Boron Solid Diffusion Source
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**
 Techneglas LLC
 2100 N. Wilkinson Way
 Perrysburg, OH 43551
 United States
 419-873-2000
 www.techneglas.com
- **Emergency telephone number:** 419-873-2000

2 Hazard(s) Identification

- **Classification of the substance or mixture:**



Health hazard

Repr. 1B H360 May damage fertility or the unborn child.



Acute Tox. 4 H302 Harmful if swallowed.
 Acute Tox. 4 H332 Harmful if inhaled.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 STOT SE 3 H335 May cause respiratory irritation.

- **Label elements:**
- **Hazard pictograms:**



- **Signal word:** Danger
- **Hazard-determining components of labeling:**
 Barium Oxide
 diboron trioxide
 Silicon Dioxide
 Aluminum Oxide
- **Hazard statements:**
 H302+H332 Harmful if swallowed or if inhaled.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H360 May damage fertility or the unborn child.
 H335 May cause respiratory irritation.

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Precautionary statements:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- P330 Rinse mouth.
- P302+P352 If on skin: Wash with plenty of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Unknown acute toxicity:

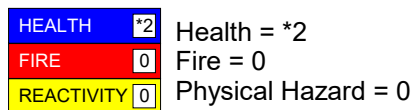
This value refers to knowledge of known, established toxicological or ecotoxicological values. 10 % of the mixture consists of component(s) of unknown toxicity.

Classification system: NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Hazard(s) not otherwise classified (HNOC): None known

3 Composition/Information on Ingredients

Chemical characterization: Substance

Description: Mixture of substances listed below with non-hazardous additions.

Dangerous Components:

CAS: 7631-86-9	Silicon Dioxide ⚠ Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	31-39%
CAS: 1344-28-1 RTECS: BD 1200000	Aluminum Oxide ⚠ STOT SE 3, H335	20-35%
CAS: 1303-86-2 RTECS: ED 7900000	diboron trioxide ⚠ Repr. 1B, H360 Specific concentration limit: Repr. 1B; H360: C ≥ 3.1 %	19-36%

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CAS: 1304-28-5 RTECS: CQ 9800000	Barium Oxide ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319	8-12%
CAS: 1309-48-4	Magnesium Oxide ⚠ Acute Tox. 4, H302	1.5-2.5%

· **Additional information:**

The exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

4 First-Aid Measures

· **Description of first aid measures**

· **General information:** If symptoms persist, call a physician.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in the side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly. If skin irritation occurs, consult a doctor.

· **After eye contact:**

Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor. If easy to do so, remove contact lenses if worn. If eye irritation occurs, consult a doctor. Rinse opened eye for several minutes under running water.

· **After swallowing:**

Contact a physician or Poison Control Center for medical advice. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If swallowed and symptoms occur, consult a doctor.

· **Information for doctor**

· **Most important symptoms and effects, both acute and delayed:** No further relevant information available.

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

No further relevant information available.

5 Fire-Fighting Measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** No further relevant information.

· **Special hazards arising from the substance or mixture:** No further relevant information available.

· **Advice for firefighters**

· **Special protective equipment for firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

· **Personal precautions, protective equipment and emergency procedures:** Not required.

· **Environmental precautions:** No special measures required.

· **Methods and material for containment and cleaning up:**

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Dispose of the collected material according to regulations.

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· **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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

7631-86-9	Silicon Dioxide	18 mg/m ³
1344-28-1	Aluminum Oxide	15 mg/m ³
1303-86-2	diboron trioxide	30 mg/m ³
1304-28-5	Barium Oxide	1.7 mg/m ³
1309-48-4	Magnesium Oxide	30 mg/m ³

· **PAC-2:**

7631-86-9	Silicon Dioxide	740 mg/m ³
1344-28-1	Aluminum Oxide	170 mg/m ³
1303-86-2	diboron trioxide	100 mg/m ³
1304-28-5	Barium Oxide	200 mg/m ³
1309-48-4	Magnesium Oxide	120 mg/m ³

· **PAC-3:**

7631-86-9	Silicon Dioxide	4,500 mg/m ³
1344-28-1	Aluminum Oxide	990 mg/m ³
1303-86-2	diboron trioxide	620 mg/m ³
1304-28-5	Barium Oxide	1,200 mg/m ³
1309-48-4	Magnesium Oxide	730 mg/m ³

7 Handling and Storage

· **Handling**

· **Precautions for safe handling:**

Avoid creating and breathing dust/fume/gas/mist/vapors/spray.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

· **Information about protection against explosions and fires:** Keep protective respiratory device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage**

· **Requirements to be met by storerooms and receptacles:** No special requirements.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:** Keep receptacle tightly sealed.

· **Specific end use(s):** No further relevant information available.

8 Exposure Controls/Personal Protection

· **Additional information about design of technical systems:** No further data; see section 7.

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· **Control parameters:**

· Components with occupational exposure limits:	
7631-86-9 Silicon Dioxide	
ACGH	Short-term value: 3 mg/m ³ Long-term value: 10 mg/m ³
IDLH	Short-term value: 3000 mg/m ³ Long-term value: 4 mg/m ³ IDLH: Immediately dangerous to life or health
TWA	Short-term value: 6 mg/m ³ Long-term value: 4 mg/m ³
1344-28-1 Aluminum Oxide	
PEL	Long-term value: 15* [*] ; 5** ^{**} mg/m ³ *Total dust; ** Respirable fraction
REL	Long-term value: 10* 5** ^{**} mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV	Long-term value: 1* mg/m ³ as Al; *as respirable fraction
1303-86-2 diboron trioxide	
PEL	Long-term value: 15* mg/m ³ *total dust
REL	Long-term value: 10 mg/m ³
TLV	Long-term value: 10 mg/m ³
1304-28-5 Barium Oxide	
PEL	Long-term value: 0.5 mg/m ³ as Ba
REL	Long-term value: 0.5 mg/m ³ as Ba
TLV	Long-term value: 0.5 mg/m ³ as Ba
1309-48-4 Magnesium Oxide	
PEL	Long-term value: 15* mg/m ³ fume; *total particulate
TLV	Long-term value: 10* mg/m ³ *as inhalable fraction

· **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls:**

· **Personal protective equipment**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing and wash before reuse.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.

· **Breathing equipment:** Not required.

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Trade Name: BoronPlus® (GS126, 93XX; GS-139, 90XX; GS-183, 91XX; GS-245, 92XX; GS-278, 94XX)

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material:**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Tightly sealed goggles

· **Limitation and supervision of exposure into the environment:** None

* **9 Physical and Chemical Properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

- **Form:** Solid
- **Color:** White
- **Odor:** Odorless
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.

· **Change in condition**

- **Melting point/Melting range:** Not determined.

· **Flash point:** None

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:** Not applicable

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not self-igniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

- **Lower:** Not determined.
- **Upper:** Not determined.

· **Vapor pressure:** Not applicable.

· **Density @ 20 °C (68 °F):** >1.0 g/cm³ (>8.345 lbs/gal)

· **Bulk density:** N/A

· **Relative density:** Not determined.

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Trade Name: BoronPlus® (GS126, 93XX; GS-139, 90XX; GS-183, 91XX; GS-245, 92XX; GS-278, 94XX)

- **Vapor density:** Not applicable.
- **Evaporation rate:** Not applicable.
- **Solubility in / Miscibility with:**
 - Water:** Insoluble.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not applicable.
 - Kinematic:** Not applicable.
- **Solvent content:**
 - VOC content:** 0.00 %
- **Other information:** No further relevant information available.

10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Product is stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects:**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

7631-86-9 Silicon Dioxide

Oral	LD50	10,000 mg/kg (Rat) (OECD 401)
Dermal	LD50	5,000 mg/kg (Rabbit) (OECD 402)
Inhalative	LC50/4 h	>140->2,000 mg/l (Rat) (OCED 403) Maximum attainable concentration, mortality does not appear. 10,000 mg/l (Zebra fish) (OECD 203)

1344-28-1 Aluminum Oxide

Oral	LD50	>10,000 mg/kg (Rat)
Inhalative	LC50/4 h	>2.6 mg/l (Rat)

1309-48-4 Magnesium Oxide

Oral	LD50	810 mg/kg (Mouse)
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- **Primary irritant effect:**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant

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Trade Name: BoronPlus® (GS126, 93XX; GS-139, 90XX; GS-183, 91XX; GS-245, 92XX; GS-278, 94XX)

- **Carcinogenic categories:**
- **IARC (International Agency for Research on Cancer):**
 - Group 1 - Carcinogenic to humans
 - Group 2A - Probably carcinogenic to humans
 - Group 2B - Possibly carcinogenic to humans
 - Group 3 - Not classifiable as to its carcinogenicity to humans
 - Group 4 - Probably not carcinogenic to humans

7631-86-9	Silicon Dioxide	3
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· **NTP (National Toxicology Program):**

None of the ingredients are listed.

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

None of the ingredients are listed.

12 Ecological Information

· **Toxicity:**

· **Aquatic toxicity:**

7631-86-9 Silicon Dioxide

EC50 >1,000 mg/l (Daphnia) (OECD 202)

- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:**

Do not allow undiluted product or product that has not been neutralized to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment:**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

13 Disposal Considerations

- **Waste treatment methods**
- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packaging**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport Information

- **UN-Number:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **UN proper shipping name:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **Transport hazard class(es):**
- **DOT, ADR/ADN, ADN, IMDG, IATA**
- **Class:** Non-Regulated Material

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- **Packing group:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **Environmental hazards:** Not applicable.
- **Special precautions for user:** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
- **UN "Model Regulation":** Non-Regulated Material

15 Regulatory Information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
No further relevant information available.

· **SARA (Superfund Amendments and Reauthorization):**

· Section 355 (extremely hazardous substances):	
None of the ingredients are listed.	

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

1344-28-1	Aluminum Oxide
1304-28-5	Barium Oxide

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

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients are listed.

· **California Proposition 65:**

· 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.

· **New Jersey Right-to-Know List:**

1344-28-1	Aluminum Oxide
1303-86-2	diboron trioxide
1304-28-5	Barium Oxide
1309-48-4	Magnesium Oxide

· **New Jersey Special Hazardous Substance List:**

1304-28-5	Barium Oxide	R2
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· **Pennsylvania Right-to-Know List:**

7631-86-9	Silicon Dioxide
1344-28-1	Aluminum Oxide
1303-86-2	diboron trioxide
1309-48-4	Magnesium Oxide

· **Pennsylvania Special Hazardous Substance List:**

1344-28-1	Aluminum Oxide	E
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· **Carcinogenic categories:**

· **EPA (Environmental Protection Agency):**

1303-86-2	diboron trioxide	I (oral)
1304-28-5	Barium Oxide	D, CBD(inh), NL(oral)

· **TLV (Threshold Limit Value established by ACGIH):**

1344-28-1	Aluminum Oxide	A4
1304-28-5	Barium Oxide	A4
1309-48-4	Magnesium Oxide	A4

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

None of the ingredients are listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms:**



· **Signal word: Danger**

· **Hazard-determining components of labeling:**

- Barium Oxide
- diboron trioxide
- Silicon Dioxide
- Aluminum Oxide

· **Hazard statements:**

- H302+H332 Harmful if swallowed or if inhaled.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H360 May damage fertility or the unborn child.
- H335 May cause respiratory irritation.

· **Precautionary statements:**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- P330 Rinse mouth.
- P302+P352 If on skin: Wash with plenty of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

None of the ingredients are listed.

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

16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· **Contact:**

· **Date of last revision/ revision number:** 01/25/2021 / 1

· **Abbreviations and acronyms:**

- ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety and Health
- OSHA: Occupational Safety & Health Administration
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Acute Tox. 3: Acute toxicity – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
- Eye Irrit. 2B: Serious eye damage/eye irritation – Category 2B
- Repr. 1B: Reproductive toxicity – Category 1B
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· *** Data compared to the previous version altered.**

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