



**Safety Data Sheet**  
According to 29 CFR 1910.1200 (OSHA HCS)



SDS No. 1185

Review date: October 23, 2019

**1 Identification of substance and company**

**Product details**  
**Product name:** Boron, crystalline powder  
**Product code:** 17068, 14768  
**Recommended use of the chemical and restrictions on use:** Research and product development  
**Manufacturer/Supplier:** Noah Technologies Corporation  
1 Noah Park  
San Antonio, Texas 78249-3419  
Phone: (210) 691-2000  
Web site: www.noahtech.com  
**Emergency information:** CHEMTREC  
800-424-9300

**2 Hazards identification**

**Pictogram(s):**  

**Signal Word:** Warning

**Classification:** Flammable solids - 2  
Acute toxicity - 4  
Specific target organ toxicity - single exposure, respiratory - 3

**Hazard statements:** H228 Flammable solid  
H302+332 Harmful if swallowed or if inhaled  
H335 May cause respiratory irritation

**Precautionary statements:** P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking  
P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
P280 Wear protective gloves/protective clothing/eye protection/face protection  
P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P405 Store locked up  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations

**HMIS ratings (scale 0-4):**

Health	1
Flammability	2
Physical hazard	1

**3 Composition/Information on ingredients**

**Chemical name:** Boron, crystalline powder  
**Designation: (CAS#):** 7440-42-8  
**Formula:** B  
**Synonyms:** None identified  
**Identification number(s):**  
**EC Number:** 231-151-2

**4 First aid measures**

**After inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice

**After skin contact:** Instantly wash with water and soap and rinse thoroughly

**After eye contact:** Rinse opened eye for at least 15 minutes under running water. Assure adequate flushing by separating the eyelids with fingers.

**After swallowing:** If conscious, rinse mouth with water. Never give anything by mouth to an unconscious person. Seek medical advice.

**Most important symptoms and effects, both acute and delayed:** May cause irritation of a mechanical nature to the skin and eyes. May cause mild irritation to the upper respiratory tract. Ingestion may cause irritation to the gastrointestinal system.

**Indication of any immediate medical attention and special treatment needed:** None known

**5 Fire-fighting measures**

**Suitable extinguishing agents:** Special powder for metal fires, alcohol-resistant foam, dry chemical or carbon dioxide. Do not use water.

**Special hazards arising from the chemical:** Dust explosion hazard. Ignites on contact with gaseous chlorine or fluorine at room temperature.

**Products of combustion or resulting gases:** Oxides of boron

**Protective equipment:** Wear self-contained breathing apparatus  
Wear fully protective fire fighting equipment/clothing in fire situations  
**Advice for firefighters:** Do not use halogenated extinguisher

#### 6 Accidental release measures

**Person-related safety precautions:** Wear personal protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
**Measures for environmental protection:** Do not allow material to be released to the environment without proper governmental permits  
**Measures for cleaning/collecting:** Evacuate area. Shut off all sources of ignition. Avoid raising dust. Use non-sparking tools.  
Ventilate and wash spill site after material removal is complete  
**Additional information:** See Section 7 for information on safe handling  
See Section 8 for information on personal protective equipment  
See Section 13 for information on disposal

#### 7 Handling and storage

**Information for safe handling:** Keep container closed.  
Keep away from heat, sparks and open flames.  
Use explosive proof equipment  
Store in a cool, dry place in tightly closed containers  
**Information about protection against explosions and fires:** Dust explosion hazard  
**Storage requirements to be met by storerooms and containers:** Keep away from heat, sparks, and open flames. Keep container tightly closed.  
**Information about storage in one common storage facility:** Do not store with strong oxidizers, acids, halogens or ammonia  
**Further information about storage conditions:** Keep container tightly sealed  
Store in cool, dry conditions in well sealed containers

#### 8 Exposure controls/personal protection

**Additional information about design of technical systems:** Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute  
**Components with critical values that require monitoring at the workplace:** This product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace  
**Additional information:** No data  
**Personal protective equipment**  
**General protective and hygienic measures:** The usual precautionary measures should be adhered to in handling the chemicals  
Keep away from foodstuffs, beverages and food  
Instantly remove any soiled and impregnated garments  
Wash hands during breaks and at the end of the work  
Avoid contact with the eyes and skin  
**Respiratory protection:** Use suitable respirator when high concentrations are present. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).  
Use a respirator with type N95 (USA) or PE (EN143) cartridges as a backup to engineering controls.  
**Hand protection:** Impervious gloves  
**Eye protection:** Safety glasses  
**Skin protection:** Protective work clothing  
**Additional protective equipment:** Sufficient to prevent contact  
Emergency eyewash and safety shower

#### 9 Physical and chemical properties

**General Information:**  
**Physical state:** Powder  
**Color:** Brown to black  
**Smell:** Odorless  
**Molecular Weight (Calculated):** 10.811  
**pH (5% solution)** No data available  
**Melting point/range:** 2079 C  
**Boiling point/range:** 2550 C (sublimes)  
**Sublimation temperature/start:** 2550 C  
**Flash point:** No data available  
**Ignition temperature:** 700 C  
**Flammability (solid, gas)** Highly flammable  
**Danger of explosion:** Dust explosion hazard  
**Flammable limits:** No data available  
**Lower:** No data available  
**Upper:** No data available  
**Vapor pressure (mm Hg):** No data available  
**Specific gravity:** 2.34  
**Solubility in/Miscibility with water at 15 °C** Insoluble

#### 10 Stability and reactivity

**Conditions to be avoided:** Heat / Open flames / Sparks / Ignition sources  
See section 7 for information on proper handling and storage

**Materials to be avoided:** Strong oxidizers and acids  
 Powdered boron reacts spontaneously with fluorine, bromine and iodine. Explosive reaction when boron and lead fluoride or silver fluoride are ground together. Incompatible with ammonia, cupric oxide, lead dioxide, nitric acid, nitrogen oxides, sulfur and interhalogens.

**Dangerous reactions:** Dust explosion hazard, see above

**Hazardous decomposition products:** Oxides of boron

### 11 Toxicological information

**Acute toxicity:**  
**LD/LC50 values that are relevant for classification:** oral-rat LD<sub>50</sub>: 650 mg/kg

**Primary irritant effect:**  
**on the skin:** May cause irritation

**on the eye:** Mild irritation

**Inhalation hazard:** May cause irritation

**Sensitization:** Not applicable

**Carcinogenicity:** EPA-1: Data are inadequate for an assessment of human carcinogenic potential

**Additional information:** May cause irritation of a mechanical nature to the skin and eyes. May cause mild irritation to the upper respiratory tract. Ingestion may cause irritation to the gastrointestinal system.  
 To the best of our knowledge the acute and chronic toxicity of this substance is not fully known

### 12 Ecological information

**Toxicity**

**Aquatic toxicity:** Brachydanio rerio LC<sub>0</sub>: > 1 mg/L:96H  
 Daphnia magna EC<sub>0</sub>: > 1 mg/L:48H

**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 material to be released to the environment without proper governmental permits  
 Avoid transfer into the environment

### 13 Disposal considerations

**Recommendation:** Consult state, local or national regulation for proper disposal  
 Allow professional disposal company to handle waste  
 Must be specially treated under adherence to official regulations

**Unclean packaging**

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

### 14 Transport information

**Land transport DOT:**



**Proper shipping name:** Flammable solid, inorganic, n.o.s.  
**Technical name:** Boron metal powder  
**DOT Hazard Class:** 4.1  
**UN Identification number:** UN3178  
**Label:** Flammable solid  
**Packing group:** III  
**North American Emergency Response Guidebook No.:** 133

**Air transport ICAO-TI and IATA-DGR:**



**Proper shipping name:** Metal powder, flammable, n.o.s.  
**DOT Hazard Class:** 4.1  
**UN Identification number:** UN3089  
**Label:** Flammable solid  
**Packing group:** III  
**North American Emergency Response Guidebook No.:** 170

**UPS Ground/ FedEx Ground:**



**Proper shipping name:** Flammable solid, inorganic, n.o.s.  
**Technical name:** Boron metal powder  
**DOT Hazard Class:** 4.1  
**UN Identification number:** UN3178

Label: Flammable solid  
Packing group: III  
North American Emergency Response  
Guidebook No.: 133

UPS Air:



Proper shipping name: Flammable solid, inorganic, n.o.s.  
Technical name: Boron metal powder  
DOT Hazard Class: 4.1  
UN Identification number: UN3178  
Label: Flammable solid  
Packing group: III  
North American Emergency Response  
Guidebook No.: 133

#### 15 Regulatory information

SARA Section 302 Extremely Hazardous: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302  
SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard  
SARA Section 313 components: Not applicable  
California Prop. 65 components: Not applicable  
TSCA: This material is listed on the TSCA inventory

#### 16 Other information

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulation are subject to change and the conditions of handling and use, or misuse are beyond our control. NOAH MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. User should satisfy himself that he has all current data relevant to his particular use.