

Safety Data Sheet
Zirconium Boride

1. Product and Company Identification

Trade Name: Zirconium Boride
Chemical Formula: ZrB_2
Recommended Use: Scientific research and development

Manufacturer/Supplier: Heeger Materials Inc.
Street: 230 Steele St
City: Denver
State: CO
Zip Code: 80206
Country: USA
Tel #: 925-385-8104

24-Hour Emergency Contact: 800-424-9300 (US & Canada)
+1-703-527-3887 (International)

2. Hazards Identification

Signal Word: Warning



Hazard Statements: H228: Flammable solid

Precautionary Statements: P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P280: Wear protective gloves/protective clothing/eye protection/face protection
P240: Ground/bond container and receiving equipment
P241: Use explosion-proof electrical/ventilating/light/.../equipment
P370+P378: In case of fire: Use CO₂, powder, or water spray for extinction

HMIS Health Ratings (0-4):

Health: 1
Flammability: 2 (powder)
Physical: 1

3. Composition

Chemical Family:	Ceramic
Additional Names:	N/A
Zirconium boride (ZrB ₂):	
Percentage:	0-100 wt%
CAS #:	12045-64-6
EC #:	234-963-5

4. First Aid Procedures

General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Ingestion:	Give one to two glasses of water and induce vomiting. Never induce vomiting or give anything by mouth to an unconscious person.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

5. Firefighting Measures

Flammability:	Flammable as powder
Extinguishing Media:	No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. Fight larger fires with water spray or alcohol resistant foam.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

6. Accidental Release Measures

If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Keep away from ignition sources. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

7. Handling and Storage

Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	5 mg/m ³ as Zr, long-term value
Threshold Limit Value:	10 mg/m ³ as Zr, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	Black
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	3000 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	6.085 g/cm ³
Molecular weight:	112.85 g/mol

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents
Incompatible Conditions:	Oxidizing agents
Hazardous Decomposition Products:	Metal oxide fume, Boron oxide

11. Toxicological Information

Potential Health Effects:	
Eyes:	May cause irritation
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	N/A
Carcinogen:	ACGIH A4: Not classifiable as a human carcinogen: Inadequate data EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

12. Ecological Information

Aquatic Toxicity:	Low
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach any water sources. Avoid transfer into the environment.

13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

14. Transportation Data

Hazardous: Hazardous for transportation as powder only



Hazard Class: 4.1 Flammable solids, self-reactive substances, and solid desensitized explosives

Packing Group: III

UN Number: UN3178

Proper Shipping Name: Flammable solid, inorganic, n.o.s. (Zirconium boride)

15. Regulatory Information

Sec 302 Extremely Hazardous: No

Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: No

16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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