

MATERIAL SAFETY DATA SHEET

TITANIUM DIBORIDE/BORON NITRIDE INTERMETALLIC COMPOSITE (IMC) POWDER

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Momentive Performance Materials
22557 West Lunn Road
Strongsville, Ohio 44149
+1 440 878 5600

EMERGENCY TELEPHONE NO.:
24 hr. CHEMTREC: 1-800-424-9300

TRADE NAME:
Titanium Diboride/Boron Nitride
Intermetallic Composite (IMC) Powder

MSDS NUMBER: 101

CHEMICAL NAME:
Titanium Diboride/Boron Nitride Mixture

SYNONYMS:
None

PREPARED BY:
Momentive Performance Materials

DATE OF ISSUE / LATEST REVISION:
December 20, 1994 / July 5, 2007

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION! Dusts may cause skin, eye, and respiratory tract irritation. Dusts are electrically conductive and abrasive. Gray odorless powder or shape.

POTENTIAL HEALTH EFFECTS:

Eye: Direct contact with product or dusts may cause mechanical irritation.

Skin Contact: Dusts may cause mechanical irritation.

Skin Absorption: Not absorbed through intact skin.

Ingestion: Not an expected route of exposure. May cause gastrointestinal irritation.

Inhalation: Not an expected route of exposure. Inhalation of dusts may cause respiratory tract irritation.

Medical Conditions Aggravated by Exposure: Pre-existing skin or respiratory disorders.

Chronic and Carcinogenicity: Prolonged exposure to high concentrations of boron nitride may cause a benign pneumoconiosis. The product is not known to be a carcinogen or suspected carcinogen. Dusts may possibly aggravate pre-existing lung and skin disorders.

Routes of exposure: Skin, respiratory tract (dusts).

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS #</u>	<u>Percent</u>	<u>ACGIH (TLV)</u>	<u>OSHA (PEL)</u>	<u>Units</u>
Boron nitride	10043-11-5	< 55	10 (T) 3 (R)	15 (T) 5 (R)	mg/M ³ mg/M ³
Titanium diboride	12045-63-5	< 45	Not est.	Not est.	
Boron oxide	1303-86-2	< 5	10 (T) 3 (R)	15 (T) 5 (R)	mg/M ³ mg/M ³
Calcium oxide	1305-78-8	< 5	2 (T)	5 (T)	mg/M ³

T = Total Dust

R = Respirable Dust

PEL - OSHA Permissible Exposure Limit; TLV - ACGIH Threshold Limit Value; TWA - Time Weighted Average
OSHA revoked the Final Rule Limits of January 19, 1989 in response to the 11th Circuit Court of Appeals decision (AFL-CIO v. OSHA) effective June 30, 1993. See 29 CFR 1910.1000 (58 FR 35338).

4. FIRST AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing give artificial respiration using a barrier device. If breathing is difficult give oxygen. Get medical attention if irritation persists.

Eyes: Do not rub eyes. Flush with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

Skin: Wash skin gently with soap and water and remove contaminated clothing. Get medical attention if irritation persists. Launder any contaminated clothing thoroughly before reuse.

Ingestion: Do not induce vomiting. If large amounts of the product are ingested, give 2 glasses of water. Never give anything by mouth to an unconscious person. Seek medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable **LEL:** Not applicable **UEL:** Not applicable

AUTO IGNITION TEMP.: Not applicable

Product is non-flammable. Dusts are electrically conductive and abrasive. Dusts may cause shorting of electrical circuits. Product in or near fires should be cooled with water spray or fog. Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus (SCBA) with full face mask and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Dike area with earth, sand, or other non-reactive material to prevent spread of release. Do not walk through spilled material. Wet mopping or vacuuming with a unit that contains a HEPA filter is recommended. Shovel or wipe up into a container for later disposal. Avoid clean up procedures that may result in water pollution. Avoid accumulation of dusts on electrical equipment. Dusts may cause shorting of electrical circuits. Personal safety and exposure recommendations described elsewhere in the data sheet apply to exposure during clean up of spilled material. See Section 13.

7. HANDLING AND STORAGE

Storage: Store in original containers away from incompatibles.

Handling: Avoid contact with the eyes and skin. Avoid generating and breathing dust. Use with adequate local exhaust ventilation. Wear protective clothing to minimize skin contact. Remove contaminated clothing and clean before reuse. Wash thoroughly after work using soap and water. Keep away from children.

Empty Containers: Product packaging may contain product residue. Do not reuse.

8. EXPOSURE CONTROL - PERSONAL PROTECTION

Engineering Controls: Ventilation and other forms of engineering controls are the preferred means for controlling exposures. The need for local exhaust ventilation should be evaluated by a professional industrial hygienist. Local exhaust ventilation systems should be designed by a professional engineer.

Respiratory: If exposure limits are exceeded or respiratory irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Supplied air respirators may be required for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA regulations (see 29 CFR 1910.134).

Eye Protection: Safety glasses with side shields.

Protective Gloves: Polymeric gloves.

General: Avoid unnecessary skin contact with this material. Polymeric coated apron or other body covering is recommended. All soiled or dirty clothing and personal protective equipment should be thoroughly cleaned before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & PHYSICAL STATE:

Gray powder or shape.

MELT POINT: > 3000°F (> 1650°C)

VAPOR DENSITY (AIR = 1): Not applicable

OCTANOL/WATER PARTITION COEFFICIENT: Not determined

VAPOR PRESSURE: Not applicable

EVAPORATION RATE (BuOAC = 1): Not applicable

ODOR: None

SPECIFIC GRAVITY/BULK DENSITY: SG = 3.0 g/cc

% VOLATILE BY VOLUME: Not volatile

BOILING POINT: > 7050°F (> 4000°C)

% SOLUBILITY (H₂O): Insoluble

pH: Not applicable

OTHER: Not applicable

10. STABILITY AND REACTIVITY

Stability and Polymerization: Product is stable. Hazardous polymerization will not occur.

Incompatibility (Conditions to Avoid): Strong oxidizing and reducing agents.

Hazardous Decomposition Products: Decomposition products may include oxides of boron and nitrogen, carbon monoxide, and carbon dioxide. Product is stable to 3000°F.

Conditions to Avoid: None known.

11. TOXICOLOGICAL INFORMATION

Boron nitride is physiologically inert and is considered a "nuisance" dust. Other boron compounds may be highly toxic and considered poisonous. Free boron will not be liberated under normal operating conditions or thermal decomposition of boron nitride. Exposure to boron nitride will not result in boron poisoning.

12. ECOLOGICAL INFORMATION

No ecotoxicity data is available. Product is inert. It is not expected to present an environmental hazard.

13. DISPOSAL CONSIDERATIONS

As prepared, product is considered non-hazardous. Dispose in accordance with all local, state, and federal or provincial regulations. If used or waste product is disposed of testing should be conducted to determine hazard characteristics. Empty containers will have product residues. Do not reuse.

14. TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT)

Proper Shipping Name: Not Regulated

Hazard Class: Not applicable

UN/NA Code: Not applicable

Packing Group: Not applicable

15. REGULATORY INFORMATION

U.S. Regulations

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA) Reportable Quantity:

This product is not subject to CERCLA reporting requirements. Report spills required under federal, state and local regulations.

Clean Water Act (CWA):

This product, as supplied, contains the following substances which are regulated pollutants under the Clean Water Act (40 CFR 122.21 and 122.42 with reference to Appendix D, Tables II-V). Facilities must notify the

appropriate permitting agency prior to introducing this product into its storm water and process waste water discharges.

Chemical Name

Boron, total (as boron nitride and boron oxide)

Toxic Substances Control Act (TSCA): All components of this product are listed or exempt from listing on the TSCA inventory.

OSHA Hazard Communication Categories: Irritant.

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA Section 311/312 Hazard Categories: Acute Hazard

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313: None

California Proposition 65:

This product contains the following chemicals known to the State of California to cause cancer, birth defects, or reproductive harm.

Chemical Name

Nickel compounds

16. OTHER INFORMATION

NFPA Ratings:

Health: 1 Flammability: 1 Reactivity: 0

HMIS Ratings:

Health: 1 Flammability: 1 Reactivity: 0

Revision Indication

This MSDS has been revised in the following section(s):

December 8, 2004:

- Section 2 – Emergency Overview
- Section 3 – Composition
- Section 5 – Fire Fighting Measures
- Section 8 – Eye Protection
- Section 11 – Toxicological Information
- Section 15 – Regulatory Information; California Proposition 65

June 4, 2007:

- Section 1- Company name updated
- Document footer- Company name updated
- Disclaimer- Versiou and company name updated

July 5, 2007:

- Secton 1- Latest revision date corrected
- Document footer- Page numbers corrected, date corrected, trademark note removed

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