

SPECIALTY MATERIALS, INC.

Manufacturer of Boron and Silicon Carbide Fiber and Boron Nanopowder

SPECIALTY MATERIALS, INC. SAFETY DATA SHEET Boron 5521 Prepreg Tape

----- SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION -----

Product Name: Boron Prepreg 5521

Product Use Description: Unidirectional Boron monofilament reinforcement in a 250°F cure epoxy resin system for use in high strength, moderate temperature composite applications

Manufacturer's Name: Specialty Materials, Inc.
Address: 1449 Middlesex Street
City, State, and ZIP: Lowell, MA 01851

Emergency Telephone No.: 978-322-1927

Other Information: 978-322-1900

Date Prepared: February 28, 2013

HMIS LABEL	
HEALTH	2
FIRE	1
REACTIVITY	2
PPE	X

----- SECTION 2 – HAZARDS IDENTIFICATION -----

Emergency Overview: Opaque, semi-solid tacky film on unidirectional fiber; Slight odor.

WARNING: Safety Description - Uncatalyzed resin may burn in a fire and emit toxic fumes (S41, R20).

Acute: Uncatalyzed epoxy resin can cause skin and eye irritation, and may produce an allergic reaction in some individuals. Use of protective gloves, eyewear and a long-sleeved garment is recommended. Prolonged exposure to resin irritation is not recommended for individuals suffering from dermatitis.

WARNING: Risk Statement - May cause allergic skin reaction. May cause eye irritation. May cause skin irritation (R36, R37, R38).

CAUTION: Boron fiber poses a splinter hazard during handling, cutting and layup of the prepreg tape.

Chronic: Prolonged exposure to resin irritation may result in Allergic Contact Dermatitis (ACD)

WARNING: Health Hazard - May cause long term allergic skin reaction.

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SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Amounts specified are typical and do not represent a specification

Component(s)	OSHA PEL	ACGIH TLV	OTHER EXPOSURE LIMITS	Wt. % MAXIMUM CONTENT	CAS No.
Proprietary formulation of Epoxy Resins and Epoxy Resin Curing Agents Formulation includes reacted epichlorohydrin* and bisphenol A. Formulation includes partially reacted Diuron Urea as a cure control agent* (meets Article definition of 40 CFR 704.3)	Not Established	Not Established	Not Established	30%	Proprietary
Boron Filament 4-mil (excluding Tungsten core)	Not Established	Not Established	Not Established	70%	7440-42-8
Mercury (Boron fiber comes into contact with liquid mercury during production in the chemical vapor deposition (CVD) process. Mercury is non-wetting to boron fiber. Testing of 4-mil boron fiber has not revealed the presence of mercury).		Not Established	Not Established	Not Detected (detection limit = 0.2ppm)	7439-97-6

Material is boron fiber encapsulated in catalyzed epoxy resin

OSHA Regulatory Status:

These materials are not classified hazardous under OSHA regulations.

Particulates and nuisance dust do not represent an air borne hazard while wetted with resin.

SECTION 4 – FIRST-AID MEASURES

Eyes: Flush with water for at least 15 minutes. Seek medical attention if irritation persists.

Skin: Wash affected area with soap and water. Seek medical attention if irritation persists.

Ingestion: Not a relevant mode of exposure. Seek medical attention if ingestion occurs.

Inhalation: No adverse effects are anticipated by breathing small amounts of vapor during use. Seek medical attention if irritation occurs.

SECTION 5 – FIRE FIGHTING MEASURES

Flammable Properties:

Flashpoint: >200°F

Flammable Limits:

LFL: Not determined

UFL: Not determined

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Extinguishing Media: Carbon dioxide, foam, dry chemical, water spray, submerge in water or cover with inert material

Fire and Explosion Hazards: May burn in fire situations and cause exothermic reaction. Decomposition temperature is >300°C.

Warning: - decomposition and combustion products may be toxic. Recommend storage in accordance with Section 7.

Special Fire Fighting Procedures: Wear Self-Contained Breathing Apparatus to prevent exposure to fumes. Cool fire-exposed containers with water.

----- SECTION 6 – ACCIDENTAL RELEASE MEASURES -----

Clean material can be returned to storage. Contaminated material should be cured to prevent exotherm of resin. Clean up carefully to avoid fiber splinters. Sweep up or vacuum with care to prevent fiber particles and dust from becoming airborne.

Caution: Avoid direct contact and wear protective gloves and safety goggles.

----- SECTION 7 – HANDLING AND STORAGE -----

Handling Precautions: Careful handling to avoid any penetration of skin or eyes by fibers. Avoid handling fiber that has been released from catalyzed epoxy resin and reduced to a fine particle size. Some individuals may develop rashes from epoxy resins. Store unused prepreg in closed containers and use gloves or barrier creams if rash occurs.

Storage Conditions: Store prepreg in sealed bags or containers at 0°F (-18°C) or below to prolong shelf life. Prior to use, allow contents to come to ambient temperature before opening container to avoid absorption of moisture which can degrade composite properties.

----- SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION -----

Respiratory Protection (Specify Type): None Usually - For Cutting or Grinding, use Respirator For Nuisance Dust (29 CFR 1910.134)

Ventilation: Recommended

Local Exhaust: Not Required Unless Working in a Confined Space

Mechanical (General): As Per ACGIH Industrial Vet. Guidelines

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Protective Gloves:	Recommended (29 CFR 1910.132)
Eye Protection:	Recommended (29 CFR 1910.133)
Other Protective Clothing or Equipment:	Additional Protective Clothing to include Long-Sleeved Garments and Face Shield for High Sensitivity Individuals
Work/Hygienic Practices:	Wash hands thoroughly before Eating or Smoking.

----- SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES -----

Boiling Point:	Not Applicable
Specific Gravity (H ₂ O = 1):	2.0
Vapor Pressure (mm Hg):	Negligible
Vapor Density (Air = 1):	Not Applicable
Solubility in Water:	Insoluble
Reactivity in Water:	None
Melting Point:	Not Applicable
Flash Point:	>200°F
LEL:	Not Established
UEL:	Not Established
Appearance and Odor:	Opaque tacky film on black unidirectional fiber, interleaved with release paper or poly film; slight odor.

----- SECTION 10 – STABILITY AND REACTIVITY -----

Stability:	Unstable () Stable (X)
Conditions to Avoid:	Extended Storage above 80°F or Exposure to Direct Sunlight. Thermal exposure conditions over 300°F
Incompatibility (Materials to Avoid):	Strong Oxidizers, Acids, Bases, Anhydrides, Polysulfides
Hazardous Decomposition Products:	CO, CO ₂ , HCN, nitrogen oxides and other organic species.
Hazardous Polymerization:	May Occur (X) Will Not Occur () at temperatures above 200°F

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SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Health Hazard

- Ingestion: No Data on the product itself. The Diuron component of the epoxy formulation indicates Oral LD50 (Rat) = 2,900 mg/kg (Tech).
- Inhalation: No Data on the product itself. The Diuron component of this product indicates possible weakness or shortness of breath by formation of methemoglobin due to inhalation.
- Skin: No Data on the product itself. Epoxy constituents used in this product have resulted in Positive Patch Test results for Allergic Contact Dermatitis (ACD). The Diuron component of this product indicates Dermal LD50 (Rabbit) = >2,000 mg/kg (Tech).

WARNING: Health Hazard – components in this product may cause long term allergic skin reaction.

- Eyes: No Data on the product itself. The Diuron component of this product indicates possible tearing or blurring of vision as a result of eye contact.

Chronic Health Hazard

This product contains no Listed Carcinogens According to IARC, ACGIH, NTP and/or OSHA in Concentrations of 0.1 Percent or Greater

SECTION 12 – ECOLOGICAL INFORMATION

Not Established

SECTION 13 – DISPOSAL CONSIDERATIONS

All waste disposal practices must be in accordance with Federal, State and Local regulations. Cured prepreg material is not considered a hazardous waste.

SECTION 14 – TRANSPORT INFORMATION

- DOT: Not Regulated
- IMO: Not Regulated
- IATA: Not regulated
- TDG: Not Regulated

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SECTION 15 – REGULATORY INFORMATION

U. S. Federal Regulations:

Occupational Safety and Health Act (OSHA) – This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29CFR 1910.1200.

National Toxicology Program (NTP) Report on Carcinogens, 12th Edition (2010) lists Epichlorohydrin (CAS# 106-89-8) as reasonably anticipated to be a human carcinogen. This substance is present in a trace amount (< 20 ppm).

Inventory Status: The components of this product are either on the TSCA Inventory, or are exempt from the inventory.

CERCLA/Superfund, 40CFR 117.32: This product contains no reportable quantity substances.

SARA Title III: Section 313 Toxic Chemical List (TCL): This product does not contain reportable substances

State Regulations:

Massachusetts Right-To-Know Hazardous Substance List:

Epichlorohydrin (trace)

New Jersey Right-To-Know Hazardous Substance List:

Epichlorohydrin (trace)

Pennsylvania Right-To-Know Hazardous Substance List:

Epichlorohydrin (trace)

California Proposition 65:

The following statement is made in compliance with California Safe Drinking and Toxic Enforcement Act of 1986: This product contains chemicals known to the State of California to cause cancer, or birth defects, or other reproductive harm.

Component	CAS#	Concentration
Epichlorohydrin	106-89-8	<20 ppm

SECTION 16 – OTHER INFORMATION

NOTICE:

The information presented herein is based upon data considered to be accurate as of the date of manufacture of this safety data sheet; however, no warranty or representation, expressed or otherwise, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, the vendor can assume no responsibility for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

SDS history:

Date of Issue: 31 July 2012

Revision: New