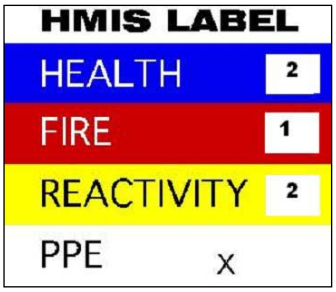
SPECIALTY MATERIALS COMPANY

Manufacturers of Boron and SCS Silicon Carbide Fibers and Boron Nanopowder

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

---------- *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: Address: City, State, and ZIP:	Specialty Materials, Inc. 1449 Middlesex Street Lowell, MA 01851
Emergency Telephone No.:	978-322-1927
Other Information:	978-322-1900
Date Prepared:	September 21, 2011



---------- *SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS* ----------

*This component is considered to be Hazardous under OSHA Hazard communication Standard 29 CFR 1910.1200.
In this article it meets the REACH definition of an Intermediate.

SPECIALTY MATERIALS COMPANY

Manufacturers of Boron and SCS Silicon Carbide Fibers and Boron Nanopowder

Amounts specified are typical and do not represent a specification

Fiber Component	OSHA PEL	ACGIH TLV	OTHER EXPOSURE LIMITS	% MAXIMUM CONTENT	CAS No.	ECN (equivalent where available)
Boron fiber on tungsten substrate (meets Article definition of 40 CFR 704.3) 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 Established	100% Not Detected (detection limit = 0.2ppm)	7440-42-8 7439-97-6	7440-42-8 7439-97-6
Resin Film Component(s) (meets Article definition of 40 CFR 704.3)	OSHA PEL	ACGIH TLV	OTHER EXPOSURE LIMITS	% MAXIMUM CONTENT	CAS No.	ECN (equivalent where available)
Tetra-functional liquid epoxy (tetraglycidylbis (p-aminophenyl) methane	Not Established	Not Established	Not Established	72%	28768-32-3	249-204-3
Solid reaction product of epichlorohydrin and bisphenol A.	Not Established	Not Established	Not Established	15%	25036-25-3	Polymer, no equivalent found
Epoxy curing agent mixture: Cyanoguanidine (99%) and Silica (1%)	Not Established	Not Established	Not Established	6%	461-58-5 7631-86-9	207-312-8 262-373-8
Diuron Urea* 3-(3,4 dichlorophenyl) -1, 1-dimethylurea	10 mg/m^3	10 mg/m^3	10 mg/m^3 (DuPont AEL)	< 5%	330-54-1	206-354-4
Silica, amorphous, fumed, crystalline-free	Not Established	Not Established	Not Established	0.1%	112945-52-5	Not available
Microglass: Potassium Aluminum Silicate (>99.7%), and Organic sizing (<0.3%)	Nus. Dust 15mg/m^3 Resp. Dust 5mg/m^3	Fibrous Glass Dust 10mg/m^3	Not Established	2%	12001-26-2; Not available	238-878-4 Not available

SPECIALTY MATERIALS COMPANY - 1449 Middlesex Street Lowell, Massachusetts 01851
Phone: 978-322-1900 • Fax: 978-322-1970 info@specmaterials.com

---------- *SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS* ----------

Boiling Point:	Not Applicable
Specific Gravity (H_2O = 1):	2.0
Vapor Pressure (mm Hg):	Negligible
Vapor Density (Air = 1):	Not Applicable
Solubility in Water:	Negligible
Reactivity in Water:	None
Melting Point:	Not Applicable
Appearance and Odor:	Black flat odorless tape

---------- *SECTION 4 - FIRE & EXPLOSION DATA* ----------

Flash Point:	>300 ^oF
Method Used:	Open Cup
Flammable Limits in Air % by Volume:	
LEL Lower:	Not Established
UEL Upper:	Not Established
Auto-Ignition Temperature:	Unknown
Extinguisher Media:	Submerge in water or cover with inert material
Special Fire Fighting Procedures:	Wear Self-Contained Breathing Apparatus to prevent exposure to fumes. Use Foam, CO_2 Dry Chemical and/or cover with Sand.
Unusual Fire and Explosion Hazards:	None Known

---------- *SECTION 5 - PHYSICAL HAZARDS (REACTIVITY DATA)* ----------

Stability:	Unstable ( ) Stable (**X**)
Conditions to Avoid:	Extended Storage above 80 ^oF or Exposure to Direct Sunlight, Heating Bulk Quantities above 100 ^oF.
Incompatibility (Materials to Avoid):	Acids, Bases, Anhydrides, Polysulfides
Hazardous Decomposition Products:	CO, CO_2, HCN, NO_x

Hazardous Polymerization:	May Occur (**X**) Will Not Occur ( )

---------- *SECTION 6 - HEALTH HAZARDS* ----------

1. Acute:	Fiber Splinters, Skin Irritation and/or Allergic Skin Reactions
2. Chronic:	Possible allergic reaction, Dermatitis
Signs and Symptoms of Exposure:	Irritation of Skin or Eyes from Splinters or Epoxy
Medical Conditions Generally Aggravated by Exposure:	Dermatitis
The following Toxicity Data is reported for Diuron, a minor intermediate of the epoxy:	Dermal LD50 (Rabbit) = >2,000 mg/kg (Tech), Oral LD50 (Rat) = 2,900 mg/kg (Tech)

Emergency and First Aid Procedures:

1. Inhalation:	Unlikely - unless epoxy is cured then pulverized or otherwise finely divided. If inhaled, remove to fresh air. If breathing is difficult, give oxygen and call a physician.
2. Eyes:	Potential transfer from hands or gloves – if eye contact occurs, hold eye open and flush gently with water for at least 15 minutes and call a physician.
3. Skin or Clothing:	Most Likely – remove contaminated clothing, wash affected area(s) with soap and water. Remove boron fiber splinters as soon as possible and clean the affected area.
4. Ingestion:	Unlikely - unless epoxy is cured then pulverized or otherwise finely divided. If swallowed, do not induce vomiting. Call a Poison Control Center or Physician immediately for treatment advice. Do not give anything by mouth to an unconscious or convulsing person.

Chemicals Listed as Carcinogen or Potential Carcinogen:

National Toxicology Program:	Yes ( ) No (**X**)
I.A.R.C. Monographs:	Yes ( ) No **(X)**
OSHA:	Yes ( ) No (**X**)

----- *SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES* ----

Precautions to be taken in Handling and Storage:	Careful handling to avoid any penetration of skin or eyes by fibers. Unless pulverized, fiber size is too large for inhalation and is encased in catalyzed epoxy resin. Some individuals can develop rashes from epoxy resins. Store in closed containers and use gloves or barrier creams if rash occurs.
Other Precautions:	None known. This resin system should be considered more reactive than most epoxy resin systems.
Steps to be Taken In Case Material Is Released or Spilled:	Clean material can be returned to proper storage. Contaminated material should be cured to prevent inadvertent heating resulting in resin exotherm. Clean up carefully to avoid fiber splinters; sweep up or vacuum.
Waste Disposal Method (Consult Federal, State, and Local Regulations):	Dispose only cured material in accordance with Federal, State and Local Regulations. Cured material may not be considered a Hazardous Waste.

-- *SECTION 8 - SPECIAL PROTECTION INFORMATION/CONTROL MEASURES* --

Respiratory Protection	None Usually - For Cutting or Grinding, use Approved Respirator suitable for dusts if exposure exceeds TLV level. Respirator For Nuisance Dust (29 CFR 1910.134)
Ventilation:	Recommended
Local Exhaust:	Not Required unless cutting or grinding the product
Mechanical (General):	As Per ACGIH Industrial Vet. Guidelines
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, long pants and Face Shield for High Sensitivity Individuals
Work/Hygienic Practices:	Wash hands thoroughly before Eating or Smoking. Do not touch or rub eyes with hands or gloves while handling this material

---------- *SECTION 9 – TOXICITY 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).
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 10 – ATTACHMENTS* ----------

NOTICE:

THE INFORMATION PRESENTED HERE IN IS BASED UPON DATA CONSIDERED TO BE ACCURATE AS OF THE DATE OF MANUFACTURE OF THIS MATERIAL DATA 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.