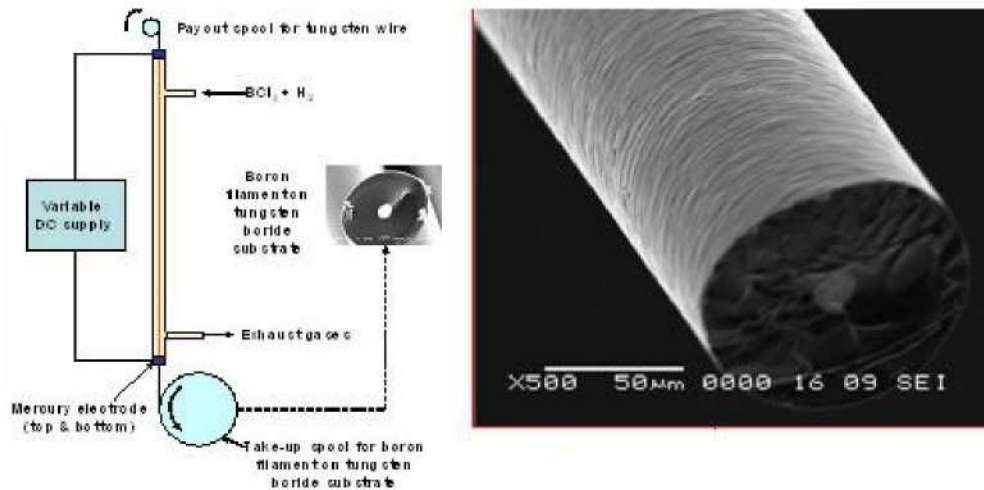


Specialty Materials, Inc.

BORON FIBER

Produced in single-filament reactors by Chemical Vapor Deposition (CVD), boron fiber exhibits a unique combination of High Strength, High Modulus and Large Diameter.



Elemental boron is deposited on a fine tungsten wire substrate and produced in diameters of 4.0-mil (102-micron) and 5.6-mil (142-micron). The resulting fiber is essentially amorphous boron with a fully borided-tungsten core. The textured surface provides an excellent interface in resin-matrix composites, eliminating any need for sizing treatments. Primarily used in resin-matrix composites it is available as a unidirectional prepreg tape with 250°F and 350°F cure epoxies.



- Boron Fiber Properties**
- Boron Prepreg Tape**
- Prepreg Properties**
- Hy-Bor® Prepreg Tape**
- Hy-Bor® Prepreg Tape Properties**
- Hy-Bor® Properties vs Standard Preforms**
- Boron Compression Strength Analysis**
- Hy-Bor® Fiber Count and Compression Strength**
- Unidirectional Dry Woven Boron**
- Boron Fiber Neutron Shielding Properties**

Specialty Materials, Inc.

BORON FIBER PROPERTIES

Property	Units	4-mil Boron (Typ.)	5.6-mil Boron (Typ.)	3-mil Boron (Typ.)
Diameter	um	102	142	76
	in. $\times 10^{-3}$	4	5.6	3
Cross-Section	-----Round-----			
Aspect Ratio	-----Continuous-----			
Density	g/cc	2.54	2.38	2.54
	lbs/in ³	0.095	0.089	0.093
Thermal Expansion	PPM/°C	4.5	4.5	4.5
	PPM/°F	2.5	2.5	2.5
Tensile Strength	MPa (min.)	3,600	4,000	-
	ksi (min.)	520	580	-
Tensile Modulus	GPa	400	400	-
	msi	58	58	-
Compression Strength (est.*)	MPa	>6000	-	-
	ksi	>900	-	-
Hardness	Knoop	3,200	3,200	3,200
*Filament compression strength calculated from composite lamina property and back-out factor.				