

3101 3K, 2x2 Twill Weave Prepreg Carbon Fiber Fabric



Prepreg Overview:

Prepreg fabrics are pre-impregnated with an epoxy resin system. As a result, nearly perfect resin content and maximum, repeatable strength properties are attainable. When properly fabricated, parts made with Fibre Glast prepregs will have a clear shine and be free of air bubbles. Although prepreg material addresses many of the nagging challenges of composite fabrication, the user's fabrication techniques will directly affect the finished properties and cosmetics.

Fibre Glast prepregs are easy to handle and are able to be stored, shipped and handled at room temperatures. These prepregs have a shelf life of 12 months when the maximum storage temperature does not exceed 75°F and 6 months when it does not exceed 90°F.

There are 3 recommended cure cycles for Fibre Glast prepregs. All 3 will produce similar properties. Proper fabrication requires vacuum bagging and oven curing or vacuum bagging and curing in an autoclave.

All curing cycles begin with a temperature ramp up and end with a ramp down. The difference is the target temperature and the amount of time required for a complete cure. Always ramp up at a rate of no more than 5°F per minute until the target temperature is attained. Maintain the target temperature throughout the cure cycle and then ramp down at a rate of less than 5°F per minute to at least 150°F (66°C) before removing from the oven. Resin content 36.0% - 42.0%.

Target Temperature	Hold For
310°F (154°C)	1 Hour
290°F (143°C)	2 Hours
270°F (132°C)	4 Hours

Fibre Glast prepregs are also environmentally friendly as they are solvent and MDS free. However, safety precautions are still necessary for handling, including eye and skin protection as well as excellent ventilation.

Carbon Fabric Overview:

Graphite fibers contain up to 95% carbon and yield the highest tensile strength in the FRP industry. These fibers woven together form graphite fabric. These fabrics offer higher strength and stiffness-to-weight ratios than any other commonly available reinforcements. While there are hundreds of types to choose from, we have selected styles of standard modulus carbon fiber which are suitable for use in racing, aircraft, competition marine, and light industrial applications. To maximize the fiber properties we recommend using only epoxy or vinyl ester resin, although polyesters will bond to the fabrics. This 2x2 twill weave fabric offers the cosmetic appearance so desirable on modern composite parts. But don't just use it for looks, this fabric is highly formable and slightly stronger than the plain.

Specific Fabric Properties:

Weave Pattern	2x2 twill
Yarn Description	Warp: 3K Multifilament Cont. Tow
	Fill: 3K Multifilament Cont. Tow
Count (Ends x Picks) inches	13x13
Weight	6.8 oz/yard ² (200 gsm approx.)
Thickness	0.012 inches
Roll Width	50 inches

Neat Resin Properties:

Density	Tg (°F/°C) (from G" DMA Curve)	Tensile Modulus (ksi/GPa)	Tensile Strength (ksi/MPa)	Elongation at Break (%)	Tg after 24-Hr Water-Boil (°F/°C)	Water Absorption (%)
1.229	270/132	440/3.03	10.7/73.77	4.0	169/76	3.9