

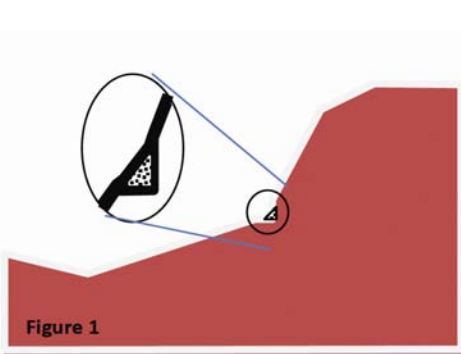
# Take Risk Out...Put **Advantex®** Glass In



## Advantex®-Based Fillet Braid™ 3D Glass Rope Fills the Gaps in Giant Field Joints

In addition to corrosion resistance, FRP (fiberglass-reinforced polymer) offers two key advantages ... how rapidly very complex multi-functional shapes can be molded and premolded parts can be “welded” (bonded) to form more elaborate or larger structures.

Sometimes, however, tight corners in molds and irregular gaps between parts to be bonded are not easily filled using even the thinnest or fluffiest fabrics. These tight corners frequently end up as voids or resin pockets in otherwise dependable parts (Fig. 1).



The solution often has been putty. Filling the gaps or corners with a material like caulking temporarily provides a smooth corner for the fabric. But, as with caulking, heat, shrinkage, and limited fiber content will lead to weakness in these structures. Several years ago, 3TEX, Inc. developed a triangular, 3D braided glass rope made with



Owens Corning™ Advantex® corrosion resistant glass to fill the strakes, chines, and corners in boat hulls, eliminating these problems. While it looks and squishes like cotton balls, Fillet Braid™ is made entirely of Advantex® glass fiber

(Fig. 2). Advantex® glass fiber reinforcement is a patented boron-free glass formulation that is both a corrosion-resistant E-CR and E-glass fiber reinforcement meeting ASTM Standard D 578. It also offers increased mechanical properties compared to standard E-glass and E-CR glasses.



In 2009, RPS Composites, Inc. produced ductwork for a large utility customer running a 1.3GW coal-fueled power plant; the ducts made to channel acidic exhaust gasses were nearly 60 feet by 30 feet and hundreds of feet long. FRP with Advantex® glass reinforcements is formulated to perform for 20 years in a sulfuric acid environment. The 1+inch-thick FRP ducts were molded into very large sections and trucked to the power plant for assembly by crane (Fig. 3). RPS Composites' power utility customer was concerned about its multi-million dollar system

hanging on joints filled with putty prone to brittleness and having to take the 1GW plant offline to repair the joints. RPS

## CASE STUDY

Composites identified a new option. 3TEX, Inc. developed acid resistant Advantex® glass-based Fillet Braid™ styles tailored specifically to field joining these large containment structures.

RPS Composites' field joining crews placed combinations of two sizes of Fillet Braid™, depending on the gap's width and depth. The rope is installed wet and then conforms to and fills the irregular gaps, yielding a more stable fiber reinforced FRP joint.



Figure 4

This power utility now specifies Advantex® glass-based Fillet Braid™ in all such joints in place of putty. RPS Composites and other FRP molders serving industries facing corrosive environments now apply Advantex® glass-based Fillet Braid™ in numerous joints, corners, and grooves both when joining precured composites and during initial infusion or hand layup of the parts. The innovative blend of applications include pipe-to-vessel joints; metal ore solvent extraction vessels; water filtration/treatment systems; and wind turbine blades to name a few. Even unusual “lashings”- like joints, braces, and straps - are formed by wrapping resin wet Advantex® glass-based Fillet Braid™ around slender pipes and beams (Fig. 4).

Once cured, the Advantex® glass Fillet Braid™ forms a rigid, tough, and acid resistant composite heavily interlaced with corrosion resistant fiber creating lighter and more durable structures.

**Specify Advantex® Glass for all FRP used in Corrosive Environments.**

**Take Risk Out...Put *Advantex*® Glass In.**

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