

# ZOLTEK™ PX35 VINYL ESTER COMPATIBLE TOW

## DESCRIPTION

Zoltek has developed a new product and sizing chemistry for use in vinyl ester resin systems. Introducing Zoltek's PX35-7 Vinyl Ester Compatible Tow product. This new product, based on our proprietary sizing chemistry, exhibits excellent adhesion to and compatibility with vinyl ester resin systems.

Most carbon fiber products are used to reinforce epoxy resin systems. Recently, the demand has grown for a product and sizing chemistry that can be used in vinyl ester resins whether cured thermally or via room temperature infusion.

When compared to Zoltek's standard carbon fiber product, PX35-1 Epoxy Multi-Compatible Tow, the new vinyl ester compatible product has significantly higher interlaminar shear strength (ILSS) and transverse flexural strength TFS, which both measure and indicate fiber to resin matrix compatibility and adhesion, as well as, composite performance.

Zoltek's PX35-7 Vinyl Ester Compatible Continuous Carbon Fiber is manufactured from a polyacrylonitrile (PAN) precursor fiber. The consistency in yield and mechanical properties that are provided by large filament count strands gives the user flexibility to design and manufacture composite materials.

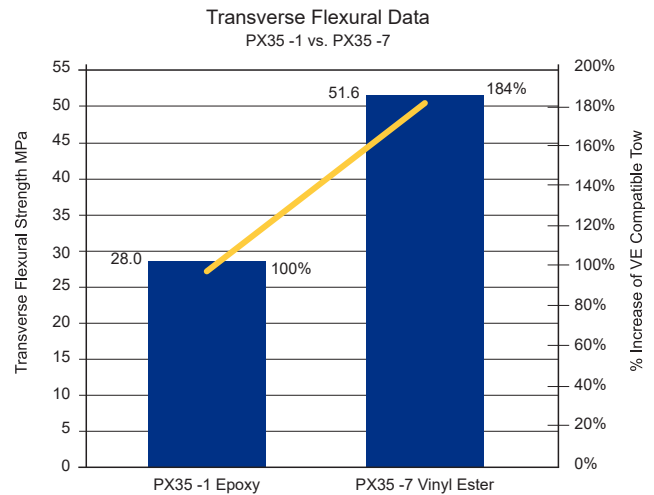
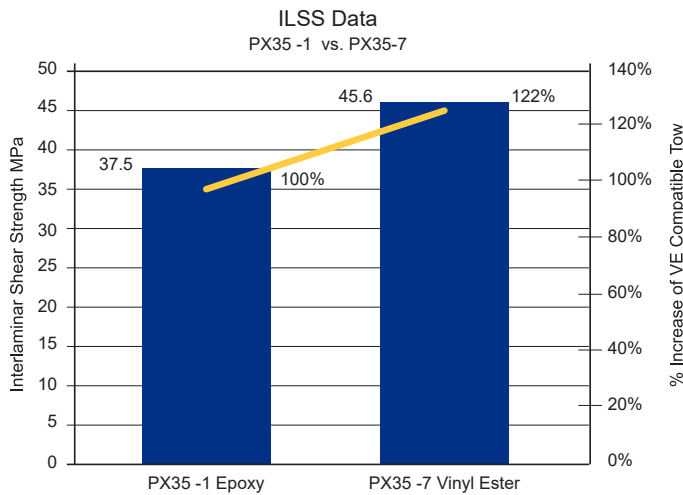


## APPLICATIONS

Marine, wind energy, automotive

## RECOMMENDED USE

Fabrics for infusion, tow for prepreg, SMC, pultrusion or any other composite process which will be used with a vinyl ester resin system.



# TECHNICAL DATASHEET

# ZOLTEK™ PX35 VINYL ESTER COMPATIBLE TOW

Unidirectional filament wound panels were fabricated with a standard vinyl ester resin. Panel thickness was approximately 2.5mm with a fiber volume fraction (Vf) of 60%. Interlaminar Shear Strength (ILSS) was tested according to ISO 14130. Transverse Flexural Strength (TFS) was tested according to ASTM D 790. Both ILSS and TFS are indicative tests for fiber to resin adhesion. The PX35 Vinyl Ester Compatible Tow product and sizing chemistry demonstrates a 22% and 84% improvement in ILSS and TFS, respectively.

| MATERIAL OVERVIEW      | SI                | US                       |
|------------------------|-------------------|--------------------------|
| Tensile Strength       | 4,137 MPa         | 600 ksi                  |
| Tensile Modulus        | 242 GPa           | 35 msi                   |
| Elongation             | 1.7%              | 1.7%                     |
| Electrical Resistivity | 0.00155 ohm-cm    | 0.00061 ohm-in           |
| Density                | 1.81 g/cc         | 0.065 lb/in <sup>3</sup> |
| Fiber Diameter         | 7.2 microns       | 0.283 mils               |
| Carbon Content         | 95%               | 95%                      |
| Yield                  | 267 m/kg          | 397 ft/lb                |
| Textile Units          | 267 m/kg          | 33700 denier             |
| Spool Weight           | 5.5 kg, 11 kg     | 12 lb, 24 lb             |
| Spool Length           | 1,500 m , 3,000 m | 1,640 yd, 3,280 yd       |

*The properties listed in this datasheet do not constitute any warranty or guarantee of values. This information should only be used for the purposes of material selection. Please contact us for more details.*

## TYPICAL PACKAGING

Wound on a 3" x 11" (7.6 cm x 28 cm) cardboard spool, sealed in heat shrunk covering, and placed in cardboard box. There are 108 spools per box with a net weight of approximately 610 kgs.

Spool outside diameter:

» 1,500 m: 180-185 mm

## APPROVAL

DNV-GL has granted approval to Zoltek PX35-7 Vinyl Ester Compatible Tow for use in wind energy and marine applications.



## CERTIFICATION

ZOLTEK PX35 Continuous Tow is manufactured in accordance with ZOLTEK's written and published data. A Certificate of Conformance is provided with each shipment.

## SAFETY

Obtain, read, and understand the Material Safety Data Sheet (SDS) before use of this or any other ZOLTEK product.

