

Product Description

Techneglas UHTR is a resin system for high temperature FRP panel fabrication, designed to handle service temperatures ranging from 500°F to up to 1832°F (260°C – 1000°C) with little to no weight loss.

Application

Techneglas UHTR resin system may be used with common fiber reinforcements, including:

- Carbon fiber
- Glass fiber
- Silica
- Basalt

Techneglas UHTR resin system is used to prepare FRP composite panels that will be used in applications where operation temperatures range from 500°F to 1832°F and does not require a post-cure cycle at, or above the anticipated service temperature of the fabricated parts.

Cure Guidelines

Techneglas UHTR can be thermally cured or catalyzed with the following:

- Titanium (IV) Butoxide at 2-3 wt%
- N-(2-Aminoethyl)-3-aminopropyltrimethoxysilane at 1-2 wt%

Cure schedule guideline:

- Fabric/fiber is wet out with TNG-UHTR resin
- Resin-infused fabric is formed into part shape
- Part is cured at 150°C for 2 hour under pressure
 - Part can be de-molded if final cure temp is too high for mold
- Temp increased to 225°C for 1 hour while maintaining pressure
- Mold is removed from oven and allowed to cool
- Yielded parts are 40%-50% resin by weight & density of 1.5-1.7 g/mL

Storage

Techneglas UHTR should be refrigerated and has a shelf-life of 6 months from the date of manufacturing. If catalyzed, UHTR has a pot life is 1-3 hours, depending on environmental conditions.

Safety Notes

Comprehensive instructions are given in the corresponding Safety Data Sheets which are available upon request or at www.techneglas.com.

Product Data

Uncured Techneglas UHTR

Appearance	Slightly cloudy liquid
Viscosity	95 cPs
Percent of Solids	65%
Odor (liquid)	Slight Solvent
V.O.C.	368 g/L (3.1 lb/gal)
Density	1.1 g/mL (9.2 lb/gal)
Pot Life at 25°C when catalyzed	1-3 hours
Liquid Ignition Temperature	>300°C

Techneglas UHTR / Carbon Fiber Composite

Resin content of FRP	40-50%
Specific Gravity	1.51
Thermal Conductivity, k (300°C)	TBD
Specific Heat Capacity, C_p (300°C)	TBD
Weight loss at 1000°C	TBD
Tensile Strength (ASTM D638)	49.2 ksi
Modulus of Elasticity, MOE (ASTM D638)	3,790 ksi
Flexural Strength (ASTM D790)	25.1 ksi
Flexural Modulus (ASTM D790)	5,420 ksi
Rockwell Hardness (ASTM D785-08, R Scale)	95

Techneglas UHTR / Silica Fiber Composite

Resin content of FRP	40-50%
Specific Gravity	1.56
Thermal Conductivity, k (300°C)	0.68 W/(m-K)
Specific Heat Capacity, C_p (300°C)	1.3 J/gK
Weight loss at 1000°C	< 5%
Tensile Strength (ASTM D638)	8,020 psi
Modulus of Elasticity, MOE (ASTM D638)	1,570 ksi
Flexural Strength (ASTM D790)	11,100 psi
Flexural Modulus (ASTM D790)	1,330 ksi
Rockwell Hardness (ASTM D785-08, R Scale)	83