

# UF3330 TCR RESIN SYSTEM



Technical Data Sheet

UF3330 is a solvent-free, high flow and low tack version of TCR's UF3325 resin. This prepreg resin system has excellent mechanical properties, room temperature shelf life, and is suitable for use in a variety of applications.

## Available Prepreg Product Formats

- Tow (roving)
- Braid

## Typical Applications

- Sporting goods
- Commercial products

## Shelf Life

- 30 months at -18°C (0°F)
- 12 months at 24°C (75°F)
- 6 months at 32°C (90°F)

## Benefits/ Features

- Long room temperature shelf life
- Excellent surface gloss

## Cure Conditions

Curing cycle for composite parts <12.7 mm or 0.5 inches in thickness

- Ramp ≤ 2.78°C/min to 154°C (310°F)
- Hold 1 hour at 154°C
- Ramp ≤ 2.78°C/min to ≤ 66°C (150°F)

Thick composite parts (>12.7 mm or 0.5 inches) will require a modified cure cycle. Please contact TCR Composites for more information.

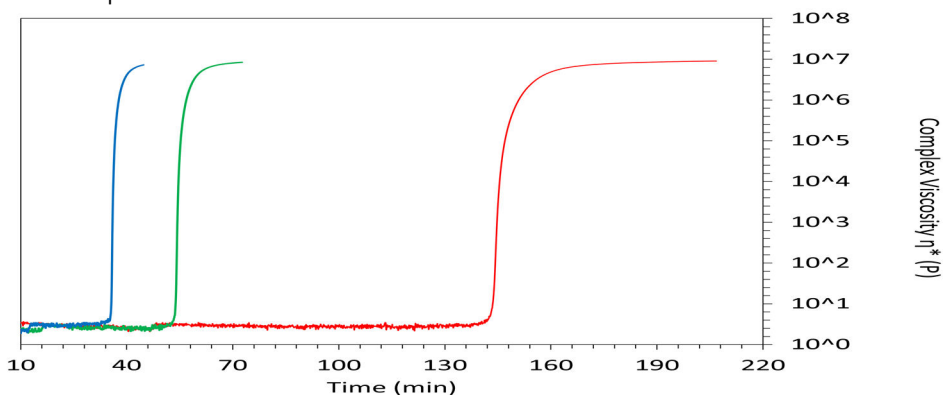
## Cured Neat Resin Physical Properties\*

Properties	Metric	English	Test Method
Density	1.19 g/cc	0.0429 lbs/in <sup>3</sup>	ASTM D 792
Tensile Strength	60 MPa	8.7 kpsi	ASTM D 638
Tensile Modulus	2.3 GPa	328 kpsi	ASTM D 638
Strain (% Elongation)	3.4%		ASTM D 638
Poisson's Ratio	0.25		ASTM D 638
Fracture Toughness – K <sub>IC</sub>	0.367 MPa*m <sup>1/2</sup>	334 psi*in <sup>1/2</sup>	ASTM D 5045
DMA – Dry Glass Transition			
Glass Transition – E" Peak	110°C	230°F	ASTM E 1640
Glass Transition – E' Onset	108°C	226 °F	ASTM E 1640
Glass Transition – Tan δ Peak	125°C	257°F	ASTM E 1640
DMA – Wet Glass Transition**			
Glass Transition – E" Peak	70°C	158°F	ASTM E 1640
Glass Transition – E' Onset	67°C	153°F	ASTM E 1640
Glass Transition – Tan δ Peak	81°C	178°F	ASTM E 1640
Water Absorption**	4.4%		ASTM D 570

\*Cure cycle: 1 hour at 154°C

## Resin Cure Viscosity

Parallel-plate rheometer



0.56°C (1°F)/min—Min η\*: 1.86 P, 71°C (160°F)

1.67°C (3°F)/min—Min η\*: 1.16 P, 49°C (120°F)

2.78°C (5°F)/min—Min η\*: 1.11 P, 51°C (124°F)

(η\*) Time to Viscosity Minimum: {(Min η\* Temperature (°C/°F) – (38°C/100°F)} ÷ {(°C/°F)/min}

TCR Composites

219 North 530 West, Ogden, Utah 84404 USA

1-800-827-3746

1-801-622-3800

sales@tcrcomposites.com | www.tcrcomposites.com

TDS-RD-0105-R004-UF3330

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## Composite Properties

Reinforcement: Standard modulus 12K tow carbon fiber: T700SC-12K-50C.

Composite properties normalized to 60% fiber volume and expressed to two significant figures.

Cure cycle: 1 hour at 154°C (310°F) via vacuum bag oven cure, tests conducted at 22°C (72°F)

Properties	Metric	English	Test Method
0° Tensile Strength	2.3 GPa	340 kpsi	ASTM D3039
0° Tensile Modulus	180 GPa	26 Mpsi	ASTM D3039
0° Tensile Percent Strain	1.3%		ASTM D3039
90° Tensile Strength	14 MPa	2.0 kpsi	ASTM D3039
0° Compressive Strength	1.6 GPa	240 kpsi	SACMA SRM 1R-94
Short Beam Strength	58 MPa	8.4 kpsi	ASTM D2344
Flexural Strength	2.1 GPa	310 kpsi	ASTM D790

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## Cure Profiles

Option	Ramp Up	Hold Temperature	Hold Time (hours)	Ramp Down
1	≤2.78°C/min (5°F/min)	154°C (310°F)	1	≤2.78°C/min (5°F/min) to 66°C (150°F) or less
2		143°C (290°F)	2	
3		132°C (270°F)	4	

All values presented within this technical data sheet are expected ranges based on actual test data. Since values are dependent on specimen preparation and test method, TCR Composites cannot guarantee that these properties will be obtained in all cases. Data should be used only as an indication, since part or component properties are highly dependent on user process and design. It is recommended that end users determine the suitability of this material for each application through their own testing and evaluation.

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