UF3352 TCR Resin System

Technical Data Sheet

UF3352 is a solvent-free, controlled flow epoxy based resin that is designed to deliver performance similar to TCR's UF3325 prepreg resin, but with lower tack and flow for unidirectional tape and fabric. This prepreg system has a one-year room temperature shelf life. It is optimally suited for cure processes using a press or autoclave, but it may also be cured via oven/vacuum bag method.

Available Prepreg Product Formats
- Woven form/fabric
- Unidirectional tape

Typical Applications
- Sporting goods
- Commercial products
- Hydraulic press cure
- Autoclave cure

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
- Tailored flow and tack levels
- Low resin flow during cure

Cure Conditions
Curing cycle for composite parts <6.35 mm or 0.25 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 (>6.35 mm or 0.25 inches) will require a modified cure cycle. Please contact TCR Composites for more information.

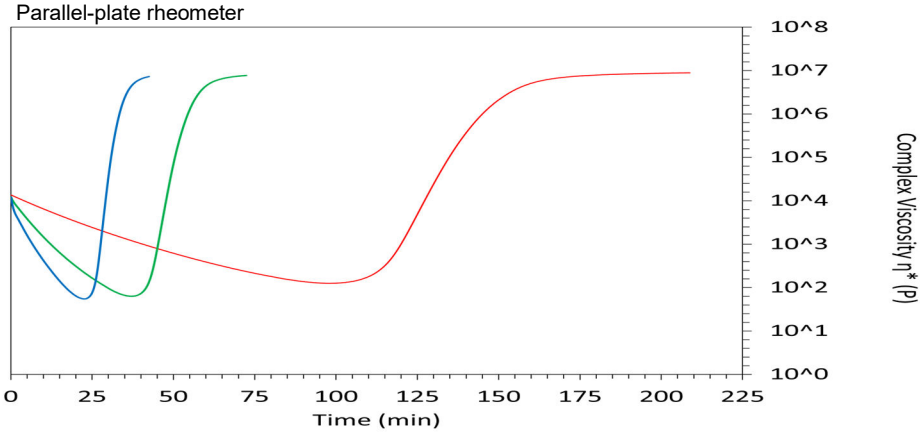
Cured Neat Resin Physical Properties*

Properties	Metric	English	Test Method
Density	1.22 g/cc	0.0441 bs/in^3	ASTM D 792
Tensile Strength	76.5 MPa	11.1 kpsi	ASTM D 638
Tensile Modulus	2.94 GPa	427 kpsi	ASTM D 638
Strain (% Elongation)	3.75 %		ASTM D 638
DMA – Dry Glass Transition			
Glass Transition – E" Peak	132°C	270°F	ASTM E 1640
Glass Transition – E' Onset	130°C	265°F	ASTM E 1640
Glass Transition – Tan δ Peak	146°C	295°F	ASTM E 1640
DMA – Wet Glass Transition**			
Glass Transition – E" Peak	86°C	187°F	ASTM E 1640
Glass Transition – E' Onset	81°C	179°F	ASTM E 1640
Glass Transition – Tan δ Peak	98°C	208°F	ASTM E 1640
Water Absorption**	3.8 %		ASTM D 570

*Cure cycle: 1 hour at 154°C
**DMA wet glass transition and water absorption measured after 24-hour water boil

Resin Cure Viscosity

Parallel-plate rheometer



0.56°C (1°F)/min—Min η*: 125.82 P, 92°C (198°F)

1.67°C (3°F)/min—Min η*: 82.31 P, 101°C (213°F)

2.78°C (5°F)/min—Min η*: 54.71 P, 105°C (220°F)

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

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Composite Properties

Reinforcement: T300-3K 2x2 twill 50” carbon fiber fabric.
Composite properties are express to two significant figures.
Cure cycle: 4 hours at 132°C (270°F), via vacuum bag oven cure, tests conducted at 22°C (72°F)

Properties	Metric	English	Test Method
0° Tensile Strength	0.75 GPa	110 kpsi	ASTM D3039
0° Tensile Modulus	76 GPa	11 Mpsi	ASTM D3039
0° Tensile Percent Strain	1.0%		ASTM D3039
0° Tensile Poisson’s Ratio	0.20		ASTM D3039
0° Compressive Strength	0.62 GPa	$9.0x10^{1}$ kpsi	SACMA SRM 1R-94
0° Compression Modulus	52 GPa	7.5 Mpsi	SACMA SRM 1R-94
Short Beam Strength	63 MPa	9.1 kpsi	ASTM D2344
Flexural Strength	0.74 GPa	108 kpsi	ASTM D790

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.