

# UF3323 TCR™ Resin

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TCR Composites offers a unique thermosetting epoxy matrix resin system featuring a **one-year shelf life without refrigeration**. This resin is currently used for tow/roving, unitape, fabric, and braid, and is available for carbon, glass, aramid, and other fibers. Resin content, resin flow during cure, and tack levels can be tailored to suit your process requirements.

## Neat Resin Properties and Applications

Density (g/cc)	Tg (°F/°C) (from G'' DMA curve)	Tensile Modulus (ksi/GPa)	Tensile Strength (ksi/MPa)	Elongation at Break (%)	Tg after 24-Hr Water-Boil (°F/°C)	Water Absorption (%)	Available Fiber Form
1.212	240 / 116	410 / 2.83	9.5 / 65.5	5.0	199 / 93	2.5	Tow/Roving, Unitape, Fabric, Braid

## Typical Use

Rocket motor cases, large structures.

## Cure

There are two recommended cure cycles for UF3323 resin. Both will produce similar properties.

1.  $\leq 5^\circ\text{F-per-minute}$  ramp up to  $280^\circ\text{F}$  ( $138^\circ\text{C}$ ), hold for 24 hours,  $< 5^\circ\text{F-per-minute}$  ramp down to at least  $150^\circ\text{F}$  ( $66^\circ\text{C}$ ) before removing from oven.
2.  $\leq 5^\circ\text{F-per-minute}$  ramp up to  $165^\circ\text{F}$  ( $74^\circ\text{C}$ ), hold for 2 hours, ramp up to  $300^\circ\text{F}$  ( $149^\circ\text{C}$ ), hold for 12 hours,  $< 5^\circ\text{F-per-minute}$  ramp down to at least  $150^\circ\text{F}$  ( $66^\circ\text{C}$ ) before removing from oven.

## Storage Requirements

The prepregged materials manufactured from this resin shall remain sealed and stored in the original package. The material is to be stored indoors, out of the weather.

The shelf life is 12 months from the date of manufacture when the maximum storage temperature shall not exceed  $75^\circ\text{F}$  ( $24^\circ\text{C}$ ).

The shelf life is 6 months from the date of manufacture when the maximum storage temperature shall not exceed  $90^\circ\text{F}$  ( $32^\circ\text{C}$ ).

The shelf life is 36 months from the date of manufacture when the maximum storage temperature shall not exceed  $0^\circ\text{F}$  ( $-18^\circ\text{C}$ ), with an additional 6 months at  $<75^\circ\text{F}$  ( $24^\circ\text{C}$ ).

The values here represent expected ranges based on actual test data. Since the values are specimen-preparation- and test-method-dependent, TCR Composites cannot guarantee that these properties will be obtained in all cases. The data should be used as an indication only, since part or component properties are highly equipment- and process-dependent. It is recommended that end users determine the suitability of this material for each application through their own testing and evaluation. TCR™ is a trademark of TCR Composites, Inc.

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