

# TR1113 TCR™ RESIN

## TECHNICAL DATA SHEET



### TR1113 Resin Summary

- Unique, **glow-in-the-dark**, solvent-free, bisphenol A epoxy resin
- **Estimated 3-month shelf life** without refrigeration
- Resin content, flow during cure, and tack levels tailored to suit your process needs
- **Available reinforcement material:** glass
- **Available fiber form:** tow/roving
- **Typical use:** applications requiring fiberglass composites, with the added benefit of phosphorescent glowing capabilities

### Neat Resin Properties

Properties	Values*	Test Method
Density	1.42 g/cc	ASTM D792
Tensile Strength	79.5 MPa / 11.5 Ksi	ASTM D638
Tensile Modulus	3.4 GPa / 484 Ksi	ASTM D638
Elongation at Break	3.3%	ASTM D638
Tg – from E" DMA curve	117°C / 243°F	ASTM E1640
Tg after 24-Hr Water-Boil	69°C / 156°F	ASTM E1640
Water Absorption	5.9%	
Approximate Glow Time After Exposure to Sunlight	1 hour; diminishes over time	
Glow Color	Phosphorescent Green	

\*Specimens cured at 121°C for 4 hours.

### Composite Properties\*\*

Properties	Metric	English	Test Method
Short Beam Strength	55 MPa	8.0 Ksi	ASTM D2344

\*\*E-glass type fiber. Cured at 121°C for 4 hours.

Presented values 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. TCR™ is a trademark of TCR Composites, Inc.

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### Cure Profiles\*

Options	Ramp Up	Hold Temperature	Hold Time (Hours)	Ramp Down
1	≤ 2.5°C/min (5°F/min)	121°C / 250°F	4	≤ 2.5 °C/min (5°F/min) to 66°C (150°F) or less
2**		121°C / 250°F	1.5	
3		110°C / 230°F	6	
4		99°C / 210°F	24	

\*Higher temperatures and shorter hold times may also work, but have not yet been tested. The use of shorter cure times at the temperatures listed above can produce a well-cured, highly cross-linked and solidified resin.

\*\*This cure cycle may not produce the maximum Tg; but will be suitable for a well-cured, highly cross-linked and solidified resin.

### Storage Requirements

The preimpregnated 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.

Maximum Storage Temperature	Estimated Shelf Life (Months)	Additional Life at Ambient Temperatures After Refrigeration (Months)
24°C / 75°F	3	-
32°C / 90°F	1.5	-
4°C / 40°F	6	2 (at Temps ≤ 24°C / 75°F)
-18°C / 0°F	18	3 (at Temps ≤ 24°C / 75°F)

For additional technical information regarding TCR Composites' products, please visit our website for a list of technical service contacts.

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