TORAY

Toray Composite Materials America, Inc.

# G-83CM PREPREG SYSTEM

G-83CM resin system provides a quick cure (290°F for 20 min) or a low temperature cure (185°F for 6 hours) with the capability to achieve class "A" surface finish. This system works well for both autoclave and fast cycle press mold processes. Quick cure cycles are used where high-cycle applications are required; lower temperature cure applications would be used where mold material is heat sensitive. G-83CM is a proven system in the automotive industry due to its fast cure and high quality Class A capability. This system works well in a variety of other applications such as industrial and aircraft grade

**High Heat Tolerance**
High $T_g$ allows for high temperature part demolding reducing cycle time. Material works well with high temperature paint curing cycles.

**Easy Layup**
Product allows complex part layup with minimal cuts or ridge lines. It maintains a comparable class A finish through post-cure, minimizing sanding and finishing times.

**Readily Available**
Product is in stock and ready to ship.

**Flexible Cure Methods**
Cutting methods include autoclave, oven cure, or press molding. Product can be cured with or without using a dwell.

Availability:

G-83CM resin is available with numerous types of unidirectional carbon fibers and woven and glass fabrics with Fiber Areal Weight (FAW) ranging from 70 g/m$^2$ to 300 g/m$^2$ and Resin Content, (RC%) by weight percent, ranging from 24% to 44%.



www.toraycma.com
253-846-1777

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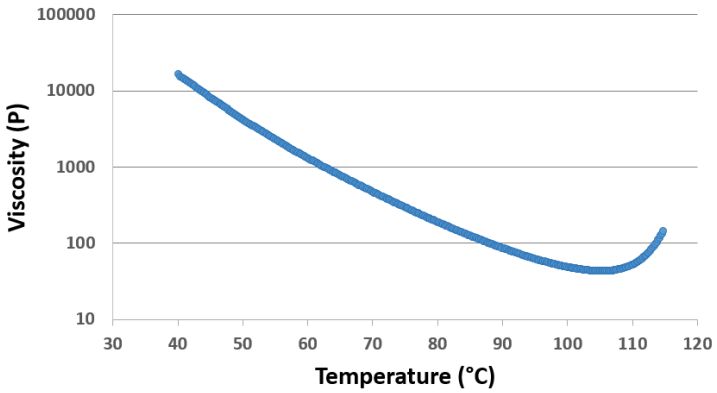
## NEAT RESIN PHYSICAL PROPERTIES

| PROPERTY | METHOD | UNITS | VALUE |
|---|---|---|---|
| Density | ASTM D595 | g/cm³ | 1.212 |
| Tg (Dry) | DMA | °F (°C) | 289 (143) |
| Gel Time | ASTM D3532 | minutes | 1.7 |
| Linear CTE | TMA | (µm/(m*°C)) | 69.9 |

## RESIN VISCOSITY CURVE




## NEAT RESIN MECHANICAL PROPERTIES

| PROPERTY | SYMBOL | METHOD | UNITS | VALUE |
|---|---|---|---|---|
| Compressive Strength | $F_C$ | ASTM D695 | Ksi (Mpa) | 18.5 (128) |
| Compressive Modulus | $E_C$ | ASTM D695 | Ksi (Mpa) | 487 (3360) |
| Flexural Modulus | $E_F$ | ASTM D790 | Ksi (Mpa) | 502 (3460) |
| Flexural Strength | $F_f$ | ASTM D790 | Ksi (Mpa) | 21.2 (146) |
| Fracture Toughness | $K_{1C}$ | ASTM D5045-99 | Psi*√in (MPa* √m) | 1.01 (1.11) |

**For more information or purchasing inquiries:**
sales@toraycma.com | www.toraycma.com | 253-846-1777

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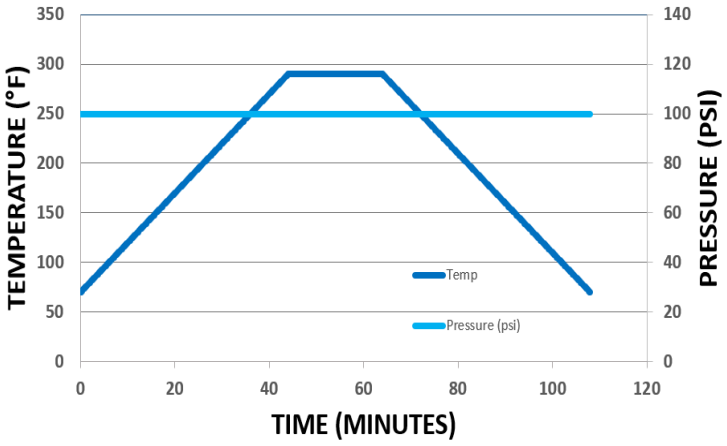
## TYPICAL LAMINATE PROPERTIES WITH T700S-12K at 190 g/m² FAW and 35% RC

| PROPERTY | SYMBOL | METHOD | UNITS | VALUE |
|---|---|---|---|---|
| 0° Tensile Strength* | $F_{1t}$ | ASTM D3039 | Ksi (MPa) | 448 (3090) |
| 90° Tensile Strength | $F_{2t}$ | ASTM D3039 | Ksi (MPa) | 8.6 (59) |
| 0° Tensile Modulus* | $E_{1t}$ | ASTM D3039 | Msi (GPa) | 20.5 (141) |
| ±45° In Plane Shear Strength | $F_{12}$ | ASTM D3518 | Ksi (MPa) | 20.6 (142) |
| Short Beam Shear Strength | SBS | ASTM D2344 | Ksi (MPa) | 13.0 (89.6) |

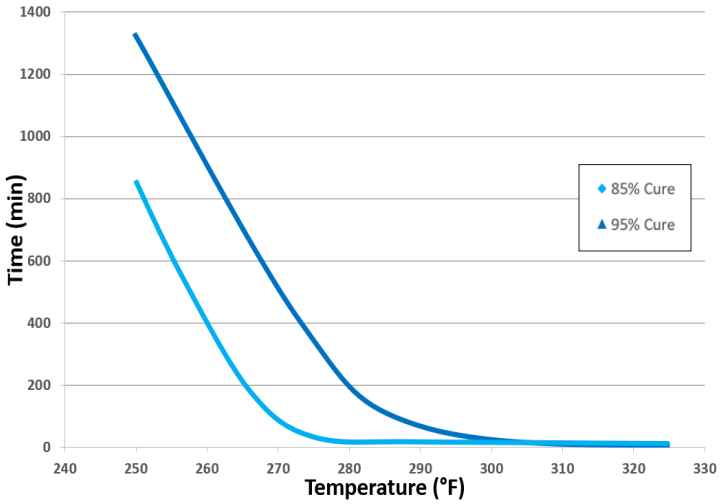
*normalized to 60% Vf

## RECOMMENDED CURE CYCLE (290°F)




Cure Temperature: 290°F
Cure Time: 20 min
Ramp Rate: 5°F/min
Cure Pressure: 100 psi
Optional vent at 130°F
Cool Down Rate: 5°F/min

## TIME TO 85% & 95% CURE BY CURE TEMPERATURE




## STORAGE LIFE

| | |
|---|---|
| Fridge Life: | 3 months @<40°F |
| Freezer Life: | 24 months @<10°F |

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