

# G-94 Prepreg System Data Sheet

**TORAY**

Toray Composite Materials America, Inc.

## PRODUCT NOTES

G-94M is our standard 250°F to 300°F cure system. It can be used for multiple purposes but is found primarily in recreational and sporting goods applications. It provides excellent mechanical properties, controlled flow, great handling, and a high Tg.



### High Heat Tolerance

High Tg 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.



### Flexible Cure Methods

Curing methods include autoclave, over cure, or press molding. Product can be cured with or without using a dwell.



### Readily Available

Product is in stock and ready to ship.

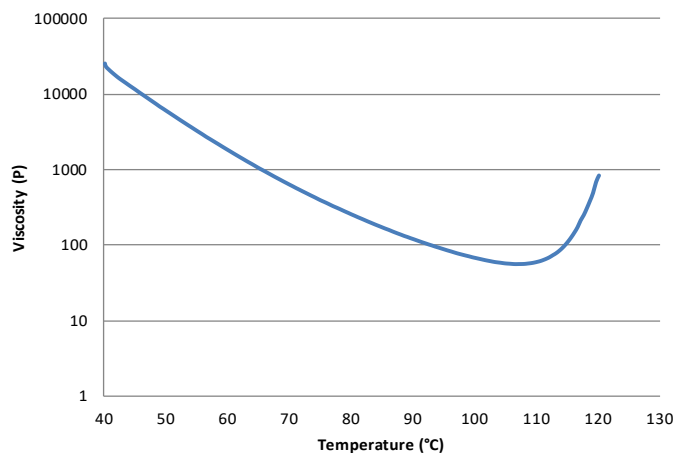
## AVAILABLE PRODUCT FORMATS

G-94M resin is available with numerous types of TORAYCA™ unidirectional carbon fibers and woven and glass fabrics with Fiber Areal Weight (FAW) ranging from 50 g/m<sup>2</sup> to 300 g/m<sup>2</sup> and Resin Content, (RC%) by weight percent, ranging from 24% to 44%.

## NEAT RESIN PHYSICAL PROPERTIES

| PROPERTY   | METHOD    | UNITS             | VALUE     |
|------------|-----------|-------------------|-----------|
| Density    | ASTM D595 | g/cm <sup>3</sup> | 1.206     |
| Tg (Dry)   | DMA       | °F (°C)           | 207 (132) |
| Gel Time   | ASTM 3532 | Minutes           | 3.6       |
| Linear CTE | TMA       | (μ/(m*°C))        | 73.9      |

## RESIN VISCOSITY CURVE



## NEAT RESIN MECHANICAL PROPERTIES

| PROPERTY             | SYMBOL          | METHOD        | UNITS             | VALUE       |
|----------------------|-----------------|---------------|-------------------|-------------|
| Compressive Strength | F <sub>C</sub>  | ASTM D695     | Ksi (MPa)         | 17.2 (119)  |
| Compressive Modulus  | E <sub>C</sub>  | ASTM D695     | Ksi (MPa)         | 455 (3,140) |
| Flexural Modulus     | E <sub>F</sub>  | ASTM D790     | KSI (MPa)         | 494 (3,410) |
| Flexural Strength    | F <sub>f</sub>  | ASTM D790     | Ksi (MPa)         | 21.4 (148)  |
| Fracture Toughness   | F <sub>1C</sub> | ASTM D5045-99 | Psi*√in (Mpa* √m) | .90 (.99)   |

**TYPICAL LAMINATE PROPERTIES WITH T700S-12K AT 150 g/m² FAW and 35% RC**

| PROPERTY                      | SYMBOL          | METHOD     | UNITS     | VALUE       |
|-------------------------------|-----------------|------------|-----------|-------------|
| 0° Tensile Strength           | F <sub>1t</sub> | ASTM D3039 | Ksi (MPa) | 407 (2,810) |
| 90° Tensile Strength          | F <sub>2t</sub> | ASTM D3039 | Ksi (MPa) | 7.7 (5.3)   |
| 0° Tensile Modulus            | E <sub>1t</sub> | ASTM D3039 | Msi (GPa) | 19.4 (134)  |
| ± 45° In Plane Shear Strength | F <sub>12</sub> | ASTM D3518 | Ksi (MPa) | 191. (132)  |
| Inter-laminar Shear Strength  | ILSS            | ASTM D2344 | Ksi (MPa) | 11.0 (75.8) |

\* Normalized to 60% VF

**TYPICAL LAMINATE PROPERTIES WITH T800S-12K AT 120 g/m² FAW and 34% RC**

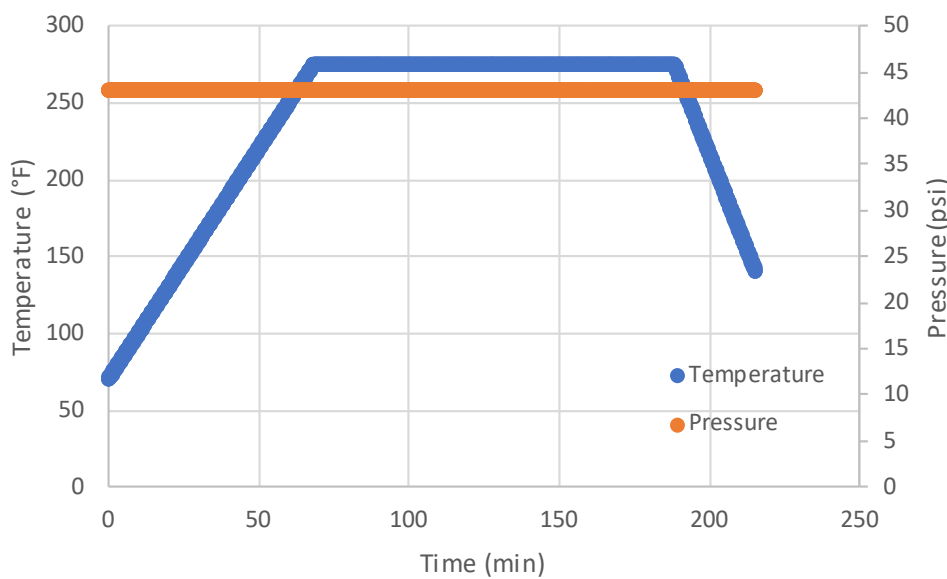
| PROPERTY                      | SYMBOL          | METHOD     | UNITS     | VALUE       |
|-------------------------------|-----------------|------------|-----------|-------------|
| 0° Tensile Strength           | F <sub>1t</sub> | ASTM D3039 | Ksi (MPa) | 472 (3,260) |
| 90° Tensile Strength          | F <sub>2t</sub> | ASTM D3039 | Ksi (MPa) | 8.6 (59)    |
| 0° Tensile Modulus            | E <sub>1t</sub> | ASTM D3039 | Msi (GPa) | 23.7 (163)  |
| ± 45° In Plane Shear Strength | F <sub>12</sub> | ASTM D3518 | Ksi (MPa) | 20.0 (138)  |
| Inter-laminar Shear Strength  | ILSS            | ASTM D2344 | Ksi (MPa) | 12.2 (84.1) |

\* Normalized to 60% VF

**STORAGE LIFE**

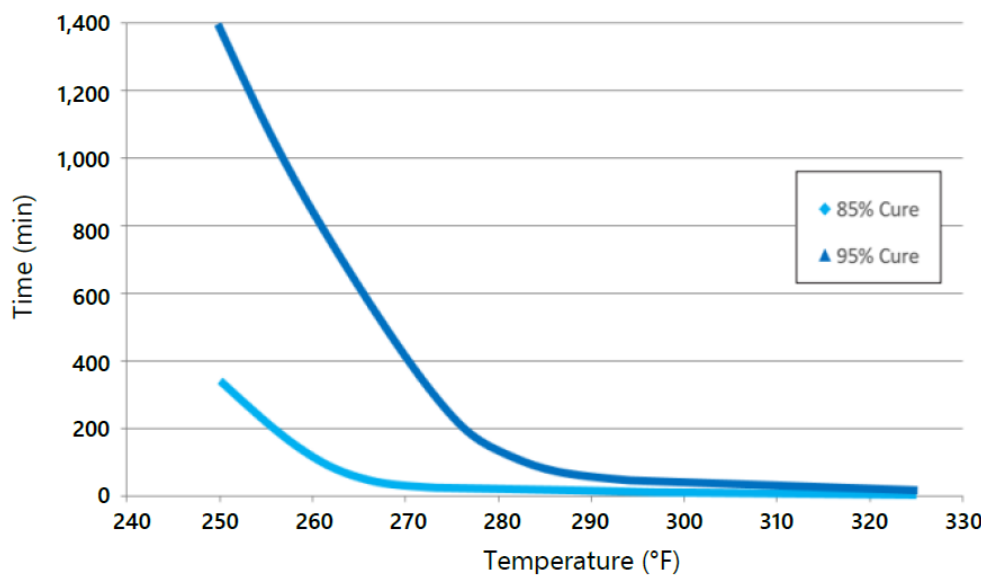
|              |                   |
|--------------|-------------------|
| Fridge Life  | 3 months @ <40°F  |
| Freezer Life | 24 months @ <10°F |

RECOMMENDED CURE CYLCE



|                         |                        |
|-------------------------|------------------------|
| Cure Temperature: 275°F | Cure Pressure: 43psi   |
| Cure Time: 120 minutes  | Cool DownRate: 5°F/min |
| Ramp Rate: 3°F/min      |                        |

TIME TO 85% AND 95% CURE BY CURE TEMPERATURE





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