

PRODUCT DATA SHEET

DESCRIPTION

Toray AmberTool® TC40 is a BMI resin that which provides excellent elevated temperature properties and processability. Toray AmberTool TC40 has been designed for high temperature tooling applications.

FEATURES

- ▶ Excellent ambient and elevated temperature properties
- ▶ Good toughness
- ▶ Good moisture resistance
- ▶ Elevated glass transition properties available with higher cure or post cure
- ▶ Good handleability and processing

PRODUCT TYPE

BMI Tooling Prepreg

TYPICAL APPLICATIONS

- ▶ High temperature tooling

SHELF LIFE

| | |
|----------------------|---------------------------|
| Out Life: | 30 days at 25°C (77°F) |
| Storage Life: | 6 months at -18°C (< 0°F) |

Out life is the maximum time allowed at room temperature before cure.

TYPICAL NEAT RESIN PROPERTIES

| | | |
|---|---------------|----------|
| Density | 1.23 g/cc | |
| Dry T _g (by DMA) at 203°C (400°F) post cure | 213°C (415°F) | |
| Gel time at 177°C (350°F) | 17 min | |
| Viscosity at: | 70°C (158°F) | 7160 cps |
| | 100°C (212°F) | 540 cps |
| | 145°C (293°F) | 200 cps |



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AmberTool®

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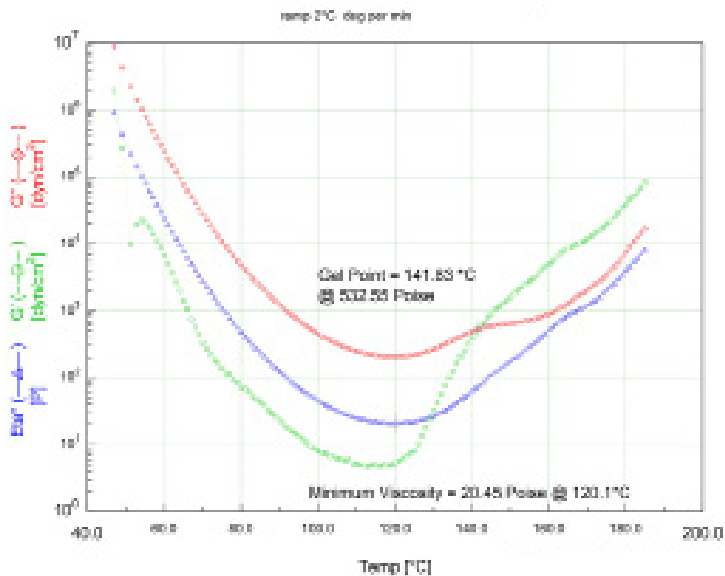
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PRODUCT CONFIGURATION

Fabric Standard modulus 6K carbon 370gsm FAW 2x2 twill 34% resin content

| Ply Lay-Ups/ General Processing Guidance | 10-Ply Lay-Up 1-8-1 Configuration |
|--|---|
| 6K carbon 2x2 twill ply | 0° |
| 6K carbon 2x2 twill plies | 0°, +45°, -45°, 90°, 90°, -45°, +45°, 0° |
| 6K carbon 2x2 twill ply | 0° |
| Room temperature debulk of 15 minutes | Flat tools—No debulk recommended Curved tools—Debulk at first and fifth ply Complex curved tools—At plies 1, 3, and 5 |
| Cure schedule —consult the Toray AmberTool® Prepreg Processing Guide for additional informations. In general, larger and more curved tools will require a much slower cure cycle with dwells to allow porosity to be removed between plies. | |

NEAT RESIN VISCOSITY TEST



TYPICAL CURE PARAMETERS*

- ▶ Apply vacuum. For autoclave applications, pressurize to 45–100 psi
- ▶ Heat to 182°C (360°F) (6°C/+10°F) at 3°C ± 2°C/min (5°F ± 3°F/min)
- ▶ Hold at 182°C (360°F) for 6 hours. (+15 min/-0 min)
- ▶ Post cure at 210°C (410°F) for 2 hours
- ▶ Cool at 5°F/min (3°C/min) to below 60°C (140°F)
- ▶ Higher T_gs can be obtained with higher temperature post cures

*Refer to Toray AmberTool® Prepreg Processing Guide for more detailed cure and post cure instructions.

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HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials. Ensure adequate ventilation and wear gloves and protective clothing. For further information, refer to our Safety Data Sheet available from Toray Advanced Composites.

PROCESSING

Processing parameters and instructions are provided in the Toray AmberTool® material processing information guide from Toray Advanced Composites at www.toraytac.com/tooling.

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