

TECHNICAL DATA



TENCATE ADVANCED COMPOSITES

TenCate AmberTool® TC40 Tooling Prepreg

PRODUCT TYPE

BMI Tooling Prepreg

TYPICAL APPLICATIONS

- High temperature tooling

SHELF LIFE

Tack Life

14 days tack life at 77°F (25°C)

Out Life

30 days out life 77°F (25°C)

Frozen Storage Life

6 months storage life at <0°F (-18°C)

Tack life is the time during which the prepreg retains enough tack, drape and handling for easy component lay-up.

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

PRODUCT DESCRIPTION

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

TENCATE AMBERTOOL® TC40 PRODUCT BENEFITS/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

NEAT RESIN PHYSICAL PROPERTIES

AmberTool TC40

Density	1.23 g/cc
Dry Tg (by DMA) using 400°F (203°C) Postcure.....	415°F (213°C)
Gel Time @ 350°F (177°C).....	17 min
Viscosity at:	
158°F (70°C).....	7160 cps
212°F (100°C).....	540 cps
293°F (145°C).....	200 cps

PRODUCT CONFIGURATION

Fabric.....6k, 2x2 Twill at 370 gsm FAW, 34% resin content

Ply Lay Ups/General Processing Guidance	10 ply lay up 1:8:1 Configuration (6k)
6k 2x2 twill ply	0°
6k 2x2 twill plys	0°, +45°, -45°, 90°, 90°, -45°, +45°, 0°
6k 2x2 twill ply	0°
Room Temp 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 Tooling 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.

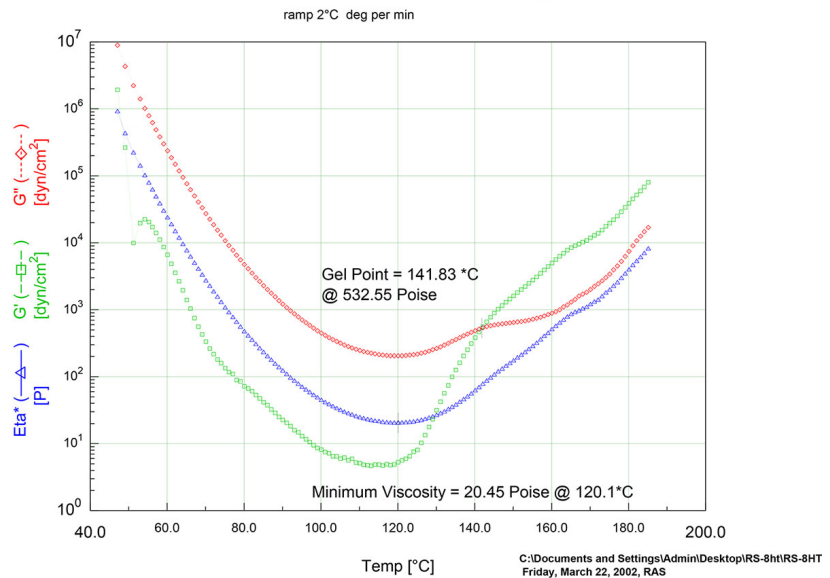
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TenCate AmberTool® TC40 Tooling Prepreg

TenCate AmberTool TC40 FB11K779 Neat Resin Viscosity Test



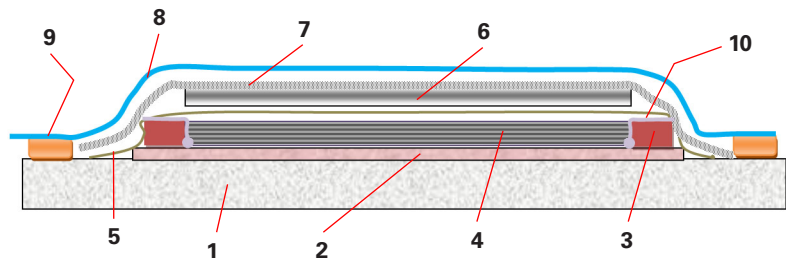
TYPICAL CURE PARAMETERS*

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

*Refer to Tooling Processing Guide for more detailed cure and post cure instructions.

COMPOSITE LAMINATE STACKING SEQUENCE: LIST OF MATERIALS

1. Tool – aluminum, steel, Invar, composite (tool plates must be release coated or film covered)
2. Release coat or film – Frekote 700NC or 770NC, FEP, TEDLAR
3. Silicone Edge Dams – Thicker than laminate
4. Laminate
5. Release coat or film – Frekote 700NC or 770NC, FEP, TEDLAR
6. Caul plate – aluminum, steel, Invar, silicone rubber sheet (metal caul plates must be release coated or wrapped)
7. 2.2 osy polyester breather – 1 or more
8. Vacuum bag
9. Vacuum sealant
10. Glass yarn string - (alternatively or additionally breather may wrap over top of dam to contact edge)



Revised 11/2013

All data given is based on representative samples of the materials in question. Since the method and circumstances under which these materials are processed and tested are key to their performance, and TenCate Advanced Composites has no assurance of how its customers will use the material, the corporation cannot guarantee these properties. TenCate AmberTool® is a registered trademark of Royal TenCate. Technical data and specifications are subject to change without notice.

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