PRODUCT DATA SHEET

TENCATE ADVANCED COMPOSITES

TenCate AmberTool® HX50 Tooling prepreg

PRODUCT TYPE

40-55°C (104-131°F) cure

Low temperature curing epoxy tooling prepreg

TYPICAL APPLICATIONS

- Small to medium sized autoclave tooling with fast cure and excellent surface finish

SHELF LIFE

Tack life
60 hours @ 18°C (64°F)

Storage life
6 months @ -18°C (0°F)

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

To avoid moisture condensation:
Following removal from cold storage, allow the prepreg to reach room temperature before opening the polythene bag. Typically the thaw time for a full roll of material will be 4 to 6 hours.

PRODUCT DESCRIPTION

TenCate AmberTool® HX50 is an epoxy resin system that can be pre-impregnated into high performance fibres such as carbon, glass and aramid. After a suitable post-cure, an end-use temperature of 180ºC (356ºF) is achieved.

TENCATE AMBERTOOL® HX50 PREPREG BENEFITS/FEATURES

- Low initial cure temperature
- Capable of unsupported post cure
- Excellent drape for complex shapes
- High glass transition temperature
- Low coefficient of thermal expansion
- Low volatile content
- 60 hours tack life at 18°C (64°F)
- 6 months storage life at -18°C (0°F)

TYPICAL NEAT RESIN PROPERTIES

Density..... 1.23 g/cm^3 (77lbs/ft^3) at 23°C (73ºF)

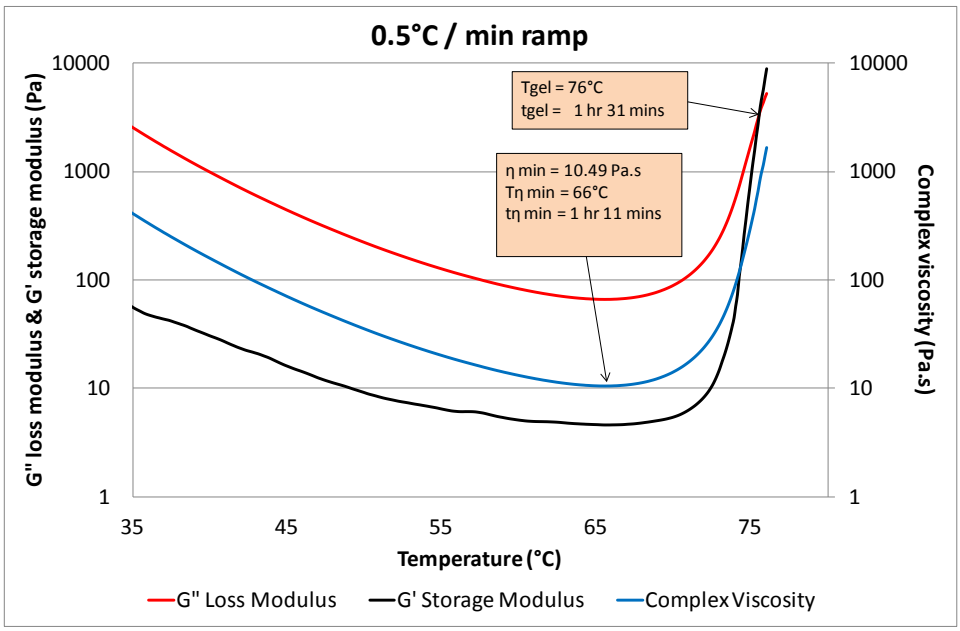
Tg (DMTA) after 190°C (374ºF) post-cure ..... Onset: 190°C (374°F); Peak tan δ: 220°C (428ºF)

Typical C.T.E. for a carbon tool..... 3.1 (1.7) x10^{-6}/°C (ºF)*

Typical C.T.E. for a glass tool ..... 12.7 (7) x10^{-6}/°C (ºF)*

*CTE is dependent on construction and processing.
Figures quoted are based on standard 1-8-1 quasi-isotropic tooling laminates.

VISCOSITY PROFILE



TenCate AmberTool® HX50 Tooling prepreg

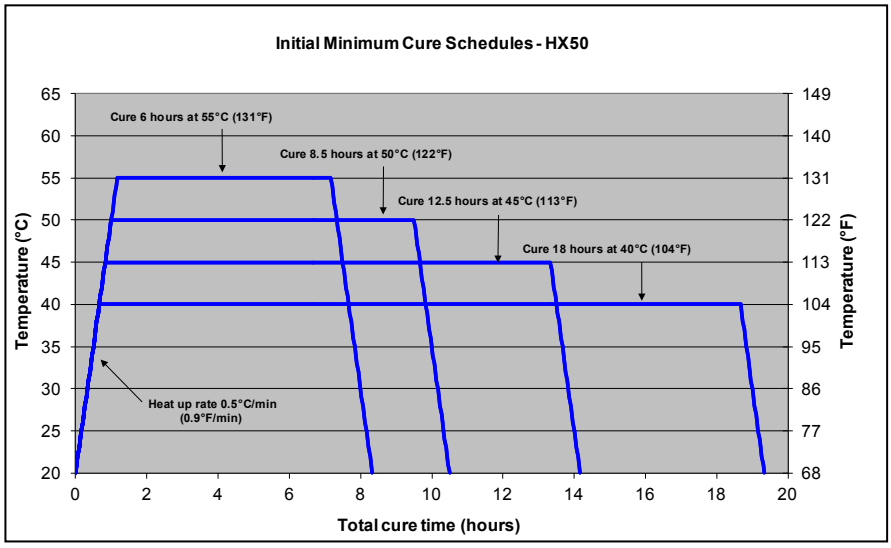
REINFORCEMENTS AVAILABLE

Fibre type	Weight (gsm)	Weave Style	Moulded thickness (mm)	Standard resin content w/o
High strength carbon 3k	205	2x2 twill	0.23	46 (surface ply)
High strength carbon 12k	650	2x2 twill	0.62	35
E glass (EC6 yarn)	300	8 harness satin	0.24	38 (surface ply)
E glass (EC9 yarn)	850	8 harness satin	0.60	28
E glass (1200 tex WR)	870	2x2 twill	0.60	28

Other fabrics and resin weights available on request.

INITIAL MINIMUM CURE TIMES

Temperature °C (°F)	Time (hrs)
40 (104)	18
45 (113)	12.5
50 (122)	8.5
55 (131)	6



Alternative cure cycles at higher temperature may be used e.g. 4 hours at 60°C (140°F)

Caution: TenCate AmberTool HX50 prepreg contains a reactive resin system and care must be taken to avoid exothermic heating during the initial cure. Avoid exceeding 65°C (149°F) during the initial cure.

POST-CURE

Post-cure schedule A:		
Ramp	1°C (1.8°F) / min to 60°C (140°F)	Dwell for 2 hours
Ramp	1°C (1.8°F) / min to 90°C (194°F)	Dwell for 1 hours
Ramp	1°C (1.8°F) / min to 120°C (248°F)	Dwell for 1 hours
Ramp	1°C (1.8°F) / min to 150°C (302°F)	Dwell for 1 hours
Ramp	1°C (1.8°F) / min to 170°C (338°F)	Dwell for 1 hours
Ramp	1°C (1.8°F) / min to 190°C (374°F)	Dwell for 6 hours

Cool to 50°C (122°F) at 2.5°C / min (4.5°F / min)

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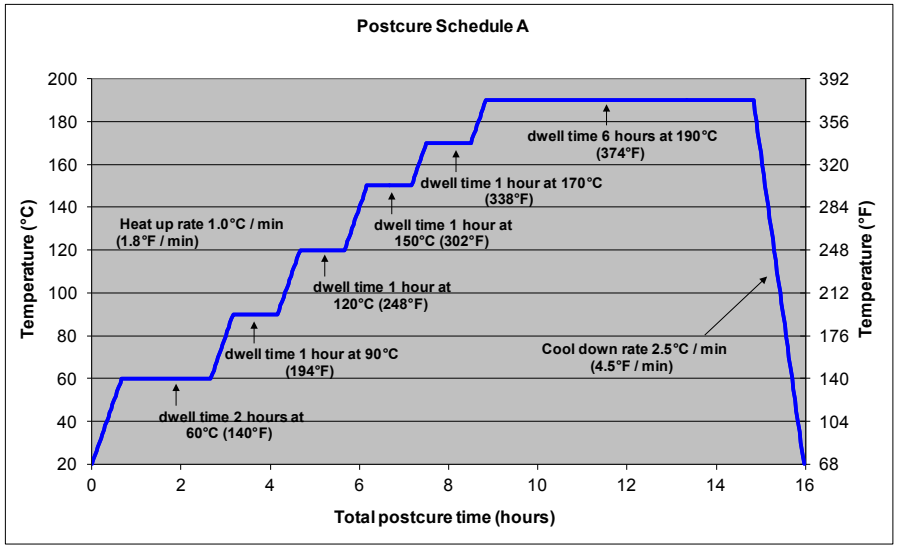
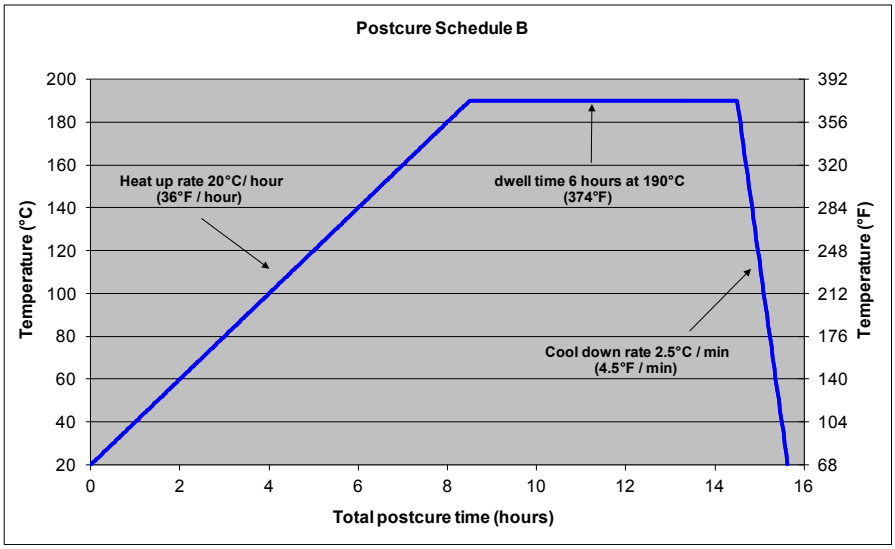


An alternative post-cure schedule may also be used as follows:



HANDLING SAFETY

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

PROCESSING

Processing parameters and instructions are provided in the TenCate AmberTool material processing information guide from TenCate Advanced Composites or at www.tencate.com/tooling

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