

TECHNICAL DATA



TENCATE ADVANCED COMPOSITES

TenCate E722 Mid temperature curing modified epoxy component prepreg

PRODUCT TYPE

120°C (248°F) cure
Toughened epoxy resin system

TYPICAL APPLICATIONS

- Motor racing
- Marine industries
- General aircraft fittings
- Sporting equipment
- Wide range of engineering applications

SHELF LIFE

Out life
60 days at @ 20°C (68°F)

Storage life
12 months @ -18°C (0°F)

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

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 E722 is a toughened epoxy resin system for cures at 120°C (248°F), pre-impregnated into high performance fibres such as carbon, glass and aramid. It is designed for structural applications in the motor racing and marine industries. TenCate E722 would also suit general aircraft fittings, sporting equipment, and a wide range of engineering applications. TenCate E722 is compatible for co-cure with TenCate EF72, a 120°C (248°F) cure resin film and TenCate Amlite SC72A syntactic core.

TENCATE E722 PRODUCT BENEFITS/FEATURES

- Excellent drapeability – complex shapes easily formed
- Good surface finish
- Medium tack level – easily laminates to mould surface
- Low volatile content – no solvents used during processing
- 60 day shelf life at ambient temperature
- Autoclave, vacuum bag or press curable

TYPICAL NEAT RESIN PROPERTIES

Density1.21 g/cm³ (75.5 lbs/ft³) at 23°C (73.4°F)
Tg (DMTA) after 1 hour @ 120°C (248°F).....Onset: 120°C (248°F); Peak tan δ: 138°C (280°F)

TYPICAL LAMINATE PROPERTIES

HS0838 – CARBON 205 GSM 2X2 TWILL TR30S T 3K - 0/90° CONFIGURATION WOVEN LAMINATES

Property	Condition	Method	Results	
Tensile Strength (Warp)	RTD	ISO 527-4	595 MPa	86 ksi
Tensile Modulus (Warp)	RTD	ISO 527-4	56.1 GPa	8.1 Msi
Poisson's Ratio (Warp)	RTD	ISO 527-4	0.04	
Tensile Strength (Weft)	RTD	ISO 527-4	580 MPa	84 ksi
Tensile Modulus (Weft)	RTD	ISO 527-4	52.4 GPa	7.6 Msi
Poisson's Ratio (Weft)	RTD	ISO 527-4	0.04	
In Plane Shear Strength	RTD	EN 6031	112 MPa	16 ksi
In Plane Shear Modulus	RTD	EN 6031	3.57 GPa	0.5 Msi
Poisson's Ratio	RTD	EN 6031	0.8	
Compression Strength (Warp)	RTD	EN 2850	567 MPa	82 ksi
Compression Modulus (Warp)	RTD	EN 2850	52.5 GPa	7.6 Msi
Compression Strength (Weft)	RTD	EN 2850	563 MPa	82 ksi
Compression Modulus (Weft)	RTD	EN 2850	49.4 GPa	7.2 Msi
ILSS (Warp)	RTD	ISO 14130	68.1 MPa	10 ksi
ILSS (Weft)	RTD	ISO 14130	68.7 MPa	10 ksi

* Cured 1 hour at 120°C (248°F) at 50% Vf.

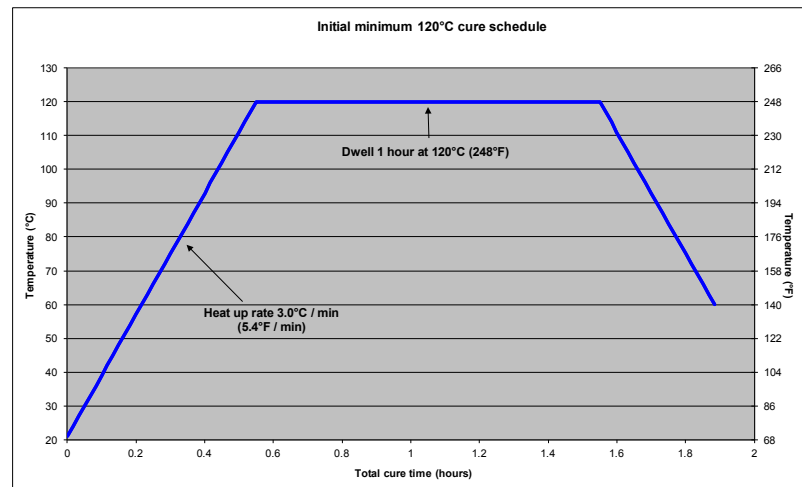
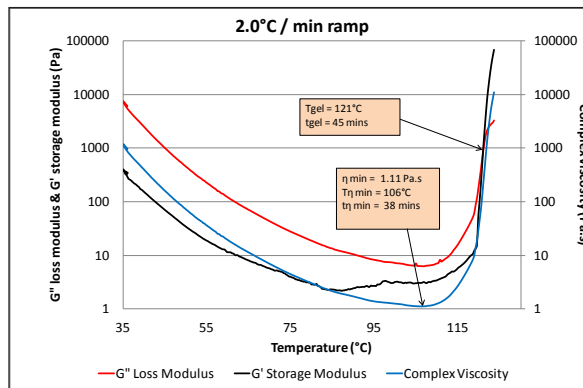
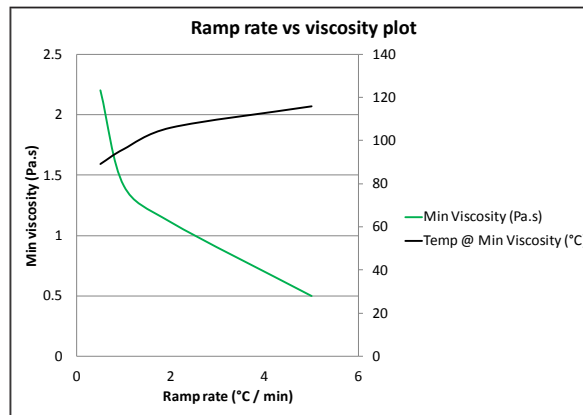
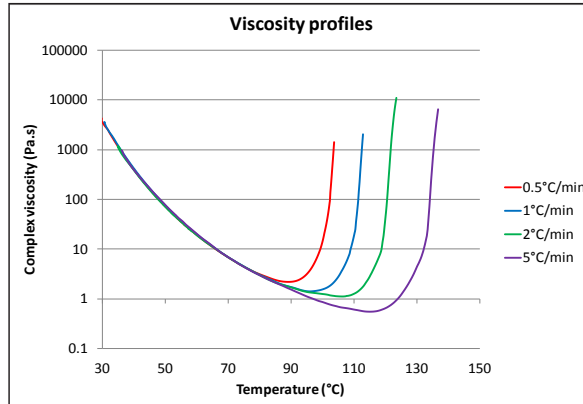
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RECOMMEND CURE CYCLE

- TenCate E722 can be successfully moulded by vacuum bag, autoclave, or matched die moulding techniques.
- Increase autoclave pressure to 1.4 bar (20 psi) with vacuum applied.
- Vent to atmosphere and raise pressure to 6.2 bar (90 psi) (or max allowed by the core material).
- Increase air temperature at 3°C (5.4°F) / min and hold for 1 hour at 120°C (248°F).
- Allow to cool to 50°C (122°F) before removal of pressure.

CURE PROPERTIES: VISCOSITY PROFILE (30°C TO 140°C OR 86°F TO 284°F)

Ramp rate [°C (°F) /min]	Min viscosity (Pa.s)	Temp @ min viscosity (°C/°F)
0.5 (1)	2.2	89°C (192°F)
1 (1.8)	1.41	96°C (205°F)
2 (3.6)	1.11	106°C (223°F)
5 (9.0)	0.5	116°C (241°F)

HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials – wear gloves.

For further information refer to Material Safety Data Sheet.

PROCESSING

Cut patterns to size and lay up the laminate in line with design instructions taking care not to distort the prepreg. If necessary, the tack of the prepreg may be increased by gentle warming with hot air. The lay-up should be vacuum debulked at regular intervals using a P3 (pin pricked) release film on the prepreg surface, vacuum of 980 mbar (29 ins Hg) is applied for 20 minutes.

For autoclave cures, use of a non-perforated release film on the prepreg surface trimmed to within 25-30mm of prepreg edge is recommended for the cure cycle, a vacuum bag should be installed using standard techniques.

EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat up rates or highly insulating masters, TenCate E722 can undergo exothermic heating leading to rapid temperature rise and component degradation in extreme cases.

Where this is likely, a cure incorporating an intermediate dwell of 1 hour at 90°C (194°F) is recommended in order to minimize the risk.

Revised 08/2013

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