

TECHNICAL DATA



TENCATE ADVANCED COMPOSITES

TenCate E730 Mid temperature curing modified epoxy component prepreg

PRODUCT TYPE

135°C (275°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
30 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 E730 is a toughened epoxy resin system for cures at 135°C (275°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, general aircraft fittings, sporting equipment and for a wide range of engineering applications.

TENCATE E730 PREPREG BENEFITS/FEATURES

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

TYPICAL NEAT RESIN PROPERTIES

Density 1.23 g/cm³ (76.8 lbs/ft³) at 23°C (73°F)
Tg (DMTA) after 4 hr post cure at 180°C (356°F) Onset: 172°C (342°F)
Peak tan δ: 195°C (383°F)

TYPICAL LAMINATE PROPERTIES

INTERMEDIATE MODULUS CARBON 200 GSM 2X2 TWILL IM7 (6K) - 0/90° CONFIGURATION WOVEN LAMINATES, CURED 1 HOUR AT 135°C (275°F), RESULTS NORMALISED TO 55% VF

Property	Condition	Method	Results	
Tensile Strength	RTD	EN2561	1045 MPa	151.6 ksi
Tensile Modulus	RTD	EN2561	68.1 GPa	9.9 Msi
Tensile Poisson's Ratio	RTD	EN2561	0.05	
Compression Strength	RTD	EN2850	640 MPa	151.6 ksi
Compression Modulus	RTD	EN2850	64.1 GPa	9.3 Msi
In-Plane Shear Strength	RTD	ASTM D3518	98 MPa	14.2 ksi
In-Plane Shear Modulus	RTD	ASTM D3518	3.2 GPa	0.5 Msi

HIGH MODULUS CARBON 200 GSM 2X2 TWILL T800 (6K) - 0/90° CONFIGURATION WOVEN LAMINATES, CURED 1 HOUR AT 135°C (275°F), RESULTS NORMALISED TO 55% VF.

Property	Condition	Method	Results	
Tensile Strength	RTD	EN2561	969 MPa	140.5 ksi
Tensile Modulus	RTD	EN2561	64.6 GPa	9.4 Msi
Tensile Poisson's Ratio		EN2561	0.06	
Compression Strength	RTD	EN2850	603 MPa	87.5 ksi
Compression Modulus	RTD	EN2850	67.1 GPa	9.7 Msi
In-Plane Shear Strength	RTD	ASTM D3518	106 MPa	15.4 ksi
In-Plane Shear Modulus	RTD	ASTM D3518	3.3 GPa	0.5 Msi

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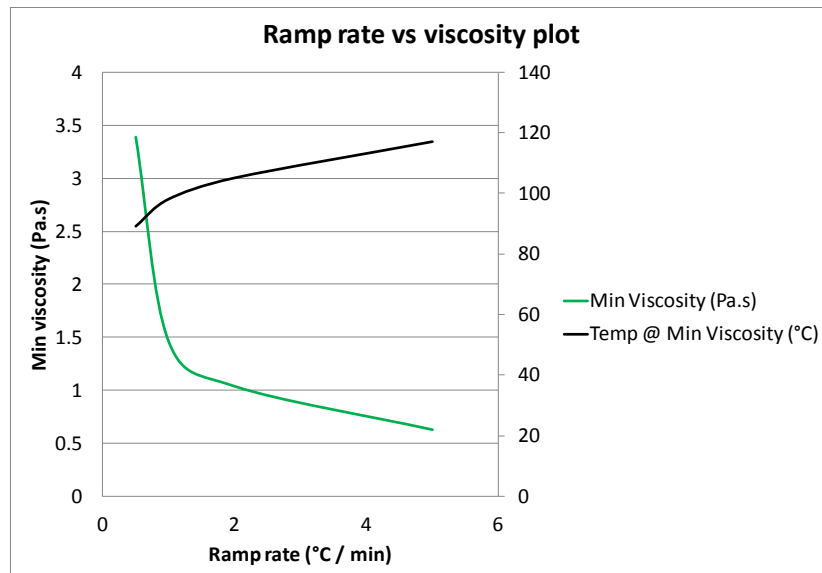
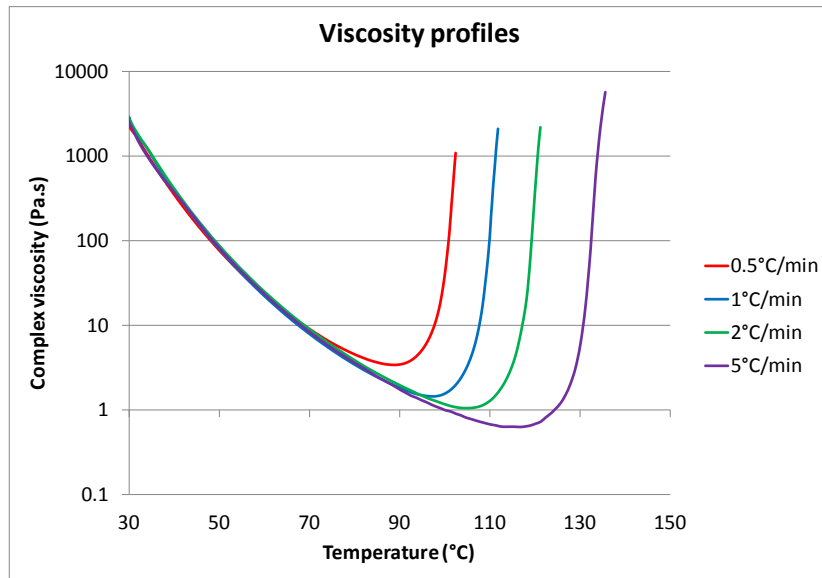
TenCate E730

Mid temperature curing modified epoxy component prepreg

HIGH MODULUS CARBON 280 GSM 5HS T800 (6K) - 0/90° CONFIGURATION WOVEN LAMINATES, CURED 1 HOUR AT 135°C (275°F), RESULTS NORMALISED TO 55% VF.

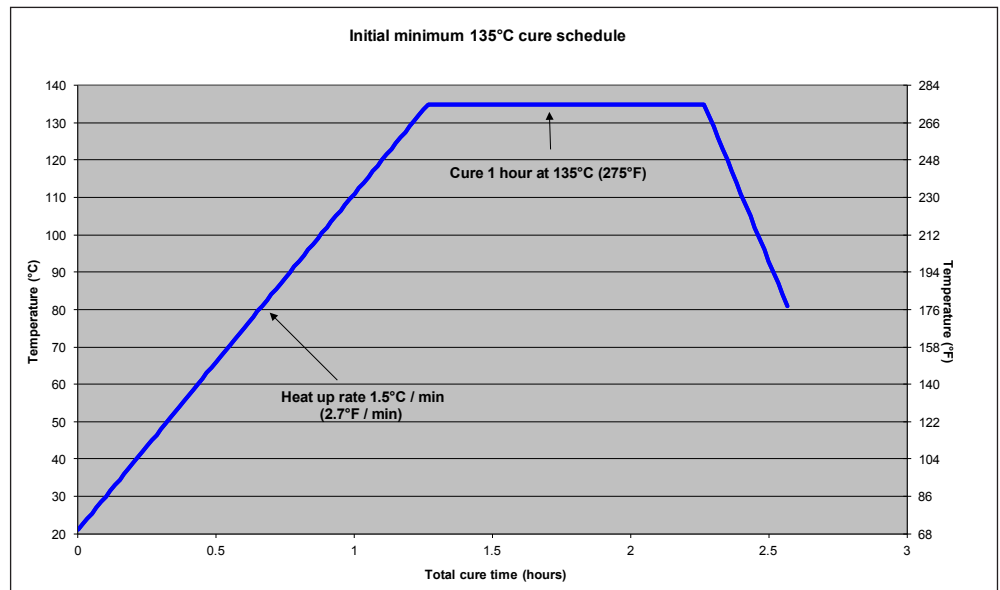
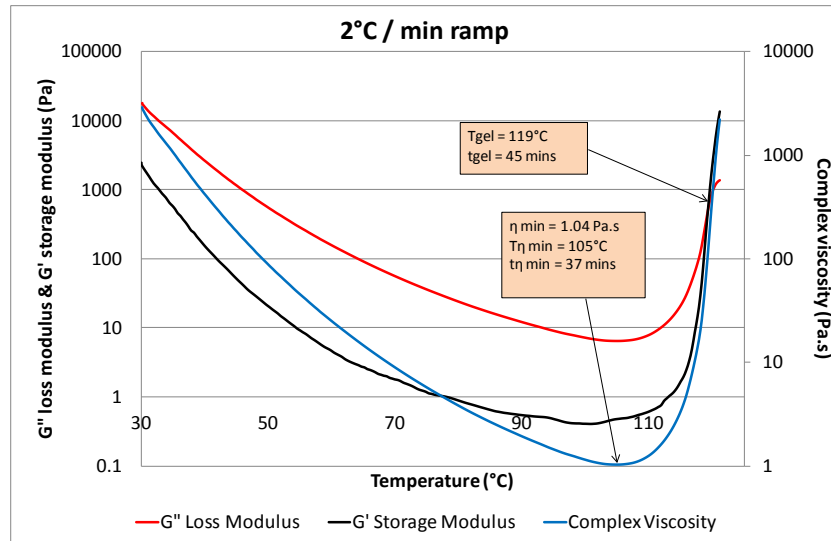
Property	Condition	Method	Results	
Tensile Strength *	RTD	EN ISO 527-4	990 MPa	144 ksi
Tensile Modulus	RTD	EN ISO 527-4	69 GPa	10 Msi
Tensile Poisson's Ratio	RTD	EN ISO 527-4	T.B.A	
Tensile Strain to failure (%)	RTD	EN ISO 527-4	1.3	
Compressive Strength	RTD	EN 2850	625 MPa	88 ksi
Compressive Modulus	RTD	EN 2850	77 GPa	11.2 Msi
Poisson's Ratio	RTD	EN 2850	T.B.A	
Flexural Strength	RTD	CRAG 200	914 MPa	132.6 ksi
Flexural Modulus	RTD	CRAG 200	78 GPa	11.3 Msi
Apparent ILSS	RTD	CRAG 100	72 MPa	10.4 ksi
Mode I Fracture Toughness	RTD	AITM 1.0005	550 J/m ²	

* Tensile strength to failure is 1%.



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RECOMMEND CURE CYCLE

- E730 can be successfully moulded by vacuum bag, autoclave, or matched die molding 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 1.5°C (2.7°F) / min and hold for 1 hour at 135°C (275°F).
- Allow to cool to 60°C (140°F) before removal of pressure.
- To obtain the maximum T_g it is essential that a suitable postcure is carried out. E.g. for T_g 195°C (383°F), ramp from initial cure temperature to 180°C (356°F) at 0.5°C /min and hold for 4 hours minimum. Cool to 60°C at 3.0°C (5.4°F) /min.

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HANDLING SAFETY

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

For further information refer to Material Safety Data Sheet.

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 (1.0)	33.9	89°C (192°F)
1 (1.8)	1.46	96°C (205°F)
2 (3.6)	1.04	105°C (221°F)
5 (9.0)	0.63	117°C (243°F)

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 in Hg) is applied for 20 minutes.

EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat up rates or highly insulating masters, TenCate E730 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.

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