

PRODUCT DATASHEET



TENCATE ADVANCED COMPOSITES

TenCate E731 Cosmetic high clarity epoxy component prepreg

PRODUCT TYPE

100°C (212°F) to 125°C (257°F) cure

Cosmetic high clarity toughened epoxy component prepreg

TYPICAL APPLICATIONS

- Cosmetic and high clarity components
- Door panels, centre console, dashboard

KEY PROPERTIES



Resin clarity



Drapeable

SHELF LIFE

Tack life

14 days @ 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 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 E731 is a toughened epoxy resin system designed to deliver enhanced resin clarity for cosmetic components within high performance automotive. The resin formulation ensures that components are free from white-spots and exhibit high clarity.

TENCATE E731 PREPREG BENEFITS / FEATURES

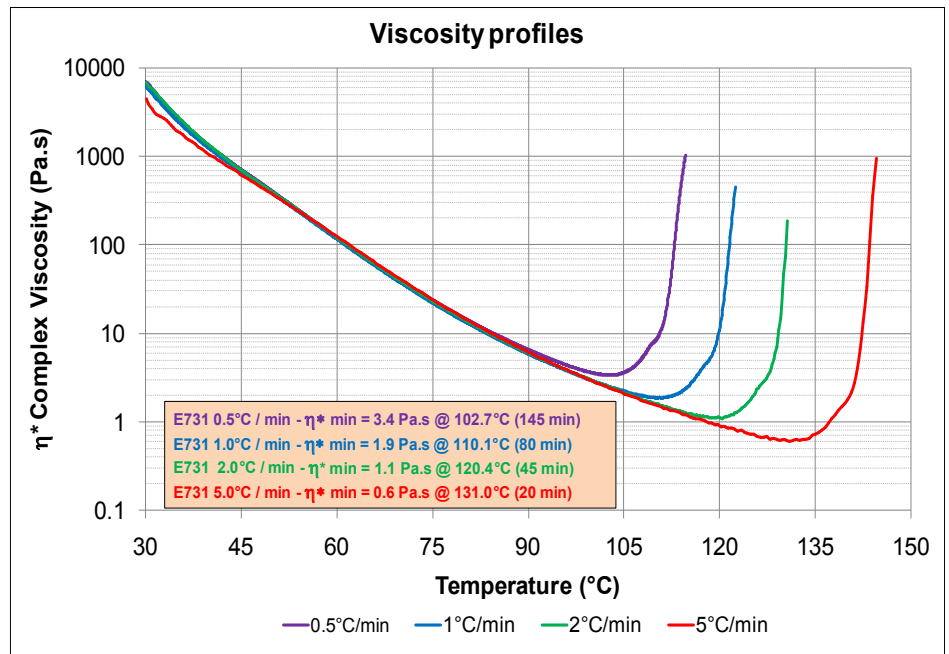
- Enhanced resin clarity - "white-spot" free
- Toughened system - good mechanical properties
- Controlled tack allows easy repositioning
- Medium temperature cures - 100°C (212°F) to 125°C (257°F)
- Tg (DMTA onset) of 140°C (284°F) after 1 hour at 125°C autoclave cure
- 14 days tack life at 18°C (64°F)
- 6 months storage life at -18°C (0°F)

TYPICAL NEAT RESIN PROPERTIES

Density (ASTM D792)..... 1.24 g/cm³ (77.4 lbs/ft³)

Tg (DMTA) after 1 hour at 125°C (257°F)..... Onset: 140°C (284°F);
Peak tan δ: 160°C (320°F)

RHEOLOGY

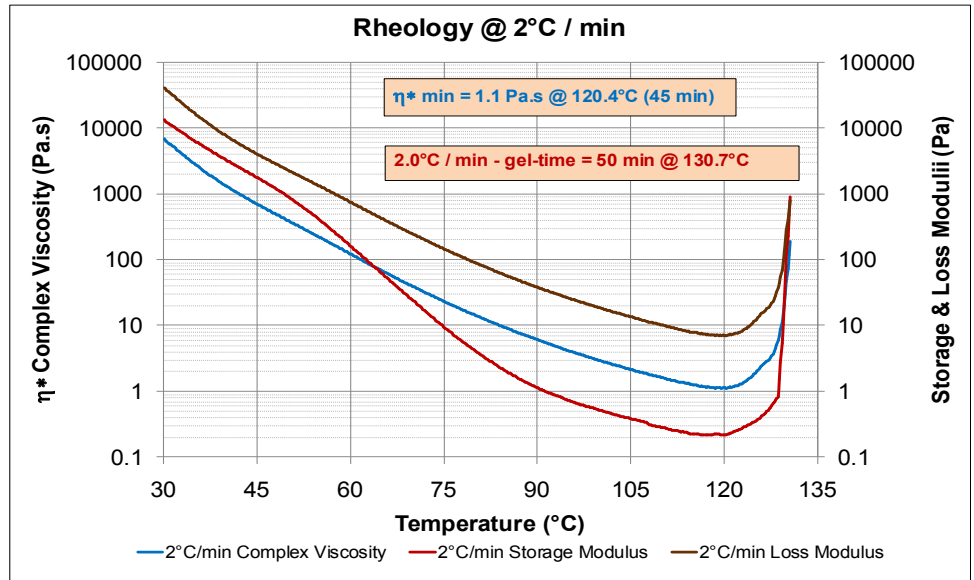


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PROCESSING

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

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.

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.

INITIAL MINIMUM CURE TIMES

Temperature °C (°F)	Time (hrs)
100 (212)	4
110 (230)	2
125 (257)	1

TYPICAL CURE PROFILES

125°C (257°F) cure temperature

Ramp	2.0°C (3.6°F) / minute to 125°C (257°F)	Dwell for 1 hour
Ramp	2.0°C (3.6°F) / minute to 50°C (122°F)	Followed by demould

Total time: 2 hours 30 minutes

100°C (212°F) cure temperature

Ramp	2.0°C (3.6°F) / minute to 100°C (212°F)	Dwell for 4 hours
Ramp	2.0°C (3.6°F) / minute to 50°C (122°F)	Followed by demould

Total time: 5 hours

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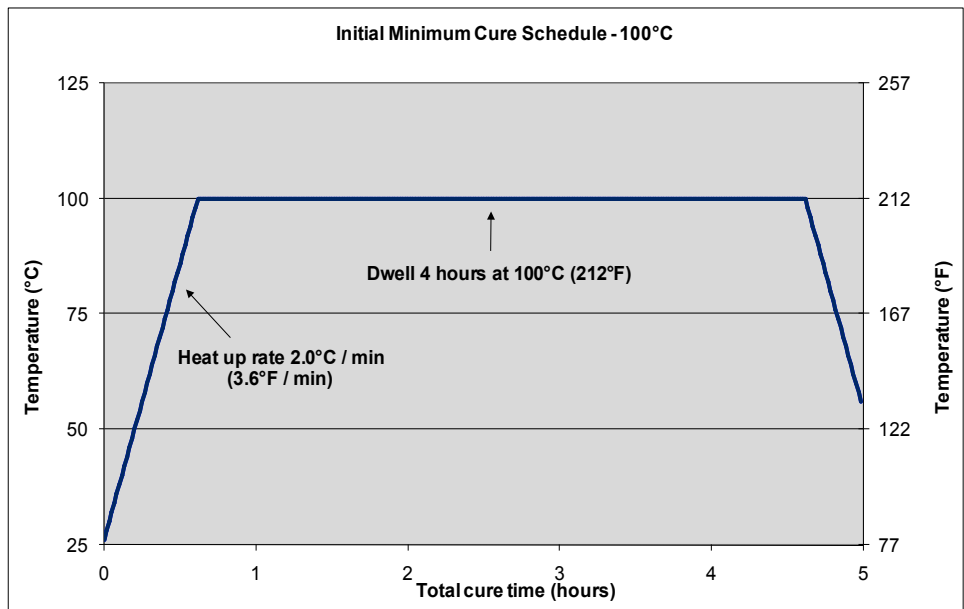
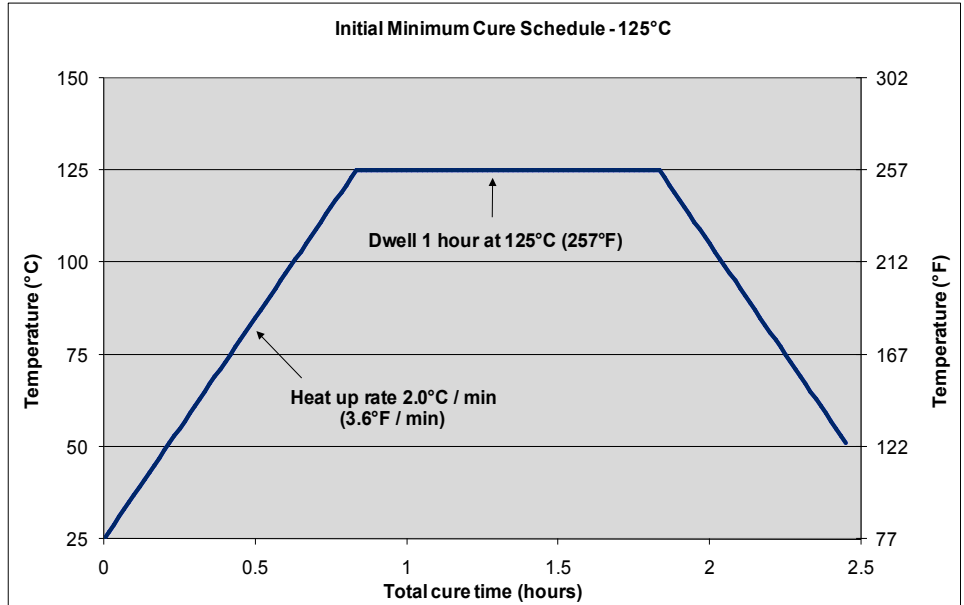


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TYPICAL TARGET CURE PROFILES



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TYPICAL LAMINATE PROPERTIES

E731-00 HS2238 - CARBON TR30S T 245 GSM 2x2T 3K 42% R.W. CURED 1 HR AT 125°C (257°F)

Property (Vf 50.1%)	Method	Test Temperature RT
Tensile Strength (MPa) - Warp	ISO 527-4	705
Tensile Modulus (GPa) - Warp	ISO 527-4	55.9
Tensile Strength (MPa) - Weft	ISO 527-4	662
Tensile Modulus (GPa) - Weft	ISO 527-4	57.7
Poisson's Ratio	ISO 527-4	0.05
Compression Strength (MPa) - Warp	prEN2850	643
Compression Modulus (GPa) - Warp	prEN2850	49.8
Compression Strength (MPa) - Weft	prEN2850	664
Compression Modulus (GPa) - Weft	prEN2850	49.7
In-Plane Shear Strength (MPa)	prEN6031	119
In-Plane Shear Modulus (GPa)	prEN6031	4.07
Poisson's Ratio	prEN6031	0.8
ILSS Warp (MPa)	ASTM D2344	63.9
ILSS Weft (MPa)	ASTM D2344	61.8
GIC (J/m ²)	prEN6033	318

REINFORCEMENTS AVAILABLE

Fibre type	Weight (gsm)	Weave style	Standard resin content rw%
High strength carbon 3k	245	2x2 twill	42 (surface ply)
High strength carbon 6k	400	2x2 twill	37 (bulk ply)
High strength carbon 12k	650	2x2 twill	32 (heavier bulk ply)

Prepreg width is 1.25m; Other fabrics and resin weights available on request.

EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat up rates or highly insulating masters. TenCate E731 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 is recommended in order to minimize the risk.

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 Safety Data Sheet available from TenCate Advanced Composites, UK.

Revised 08/2015

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.

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