

# PRODUCT DATASHEET



TENCATE ADVANCED COMPOSITES

## TenCate E750 Versatile temperature curing epoxy resin component prepreg

### PRODUCT TYPE

80°C (176°F) to 180°C (356°F) cure

Versatile temperature curing toughened epoxy component prepreg

### TYPICAL APPLICATIONS

- Structural applications within Formula 1

### SHELF LIFE

#### Out life

60 days at @ 18°C (64°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 E750 is a toughened epoxy resin system developed for structural applications within Formula 1 and high performance automotive. The resin system allows curing from 80°C (176°F) to 180°C (356°F) and can be impregnated into a range of fibre and fabric types.

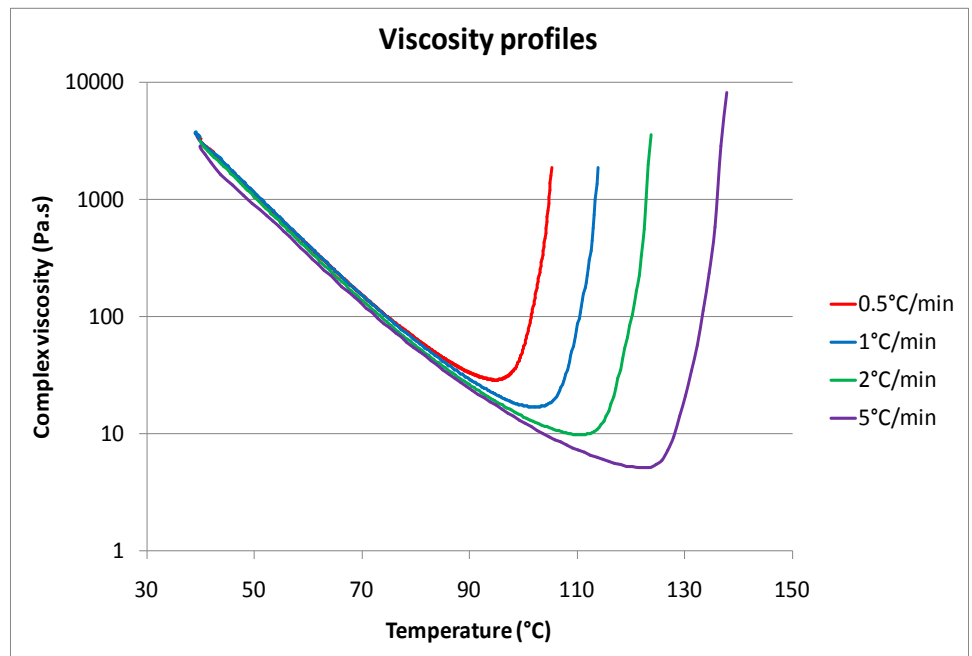
### TENCATE E750 PREPREG BENEFITS/FEATURES

- Versatile cure schedules 80°C (176°F) to 180°C (356°F)
- Excellent translation of fibre properties
- Good impact resistance
- Excellent retention of properties at 120°C (248°F)
- Controlled flow
- Good drape and tack
- 60 days outlife at 18°C (64°F)
- 12 months storage life at -18°C (0°F)

### TYPICAL NEAT RESIN PROPERTIES

Density ..... 1.23 g/cm<sup>3</sup> (76.8 lbs/ft<sup>3</sup>)

Tg (DMA) after 1 hr at 135°C (275°F)..... Onset: 148°C (298.4°F);  
Peak tan δ: 185°C (365°F)



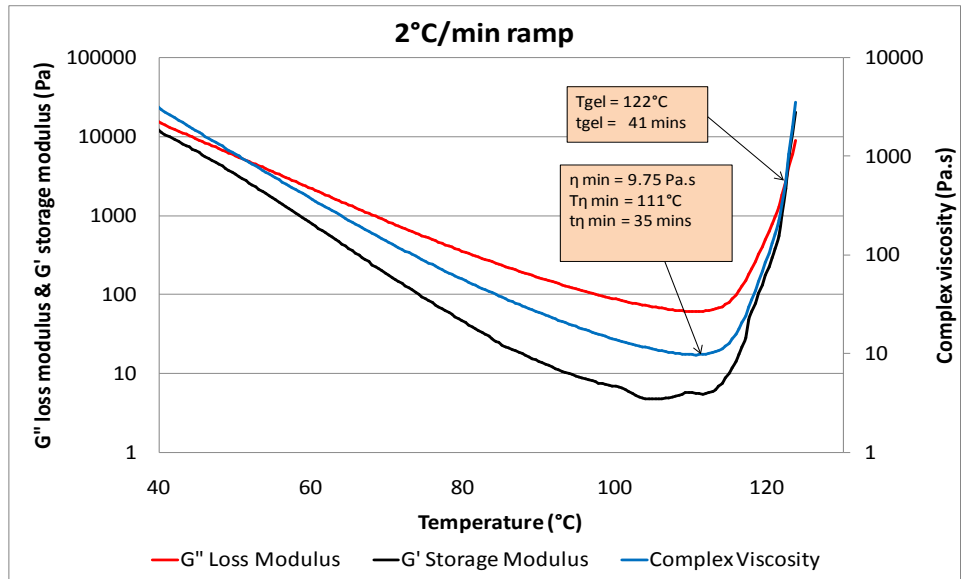
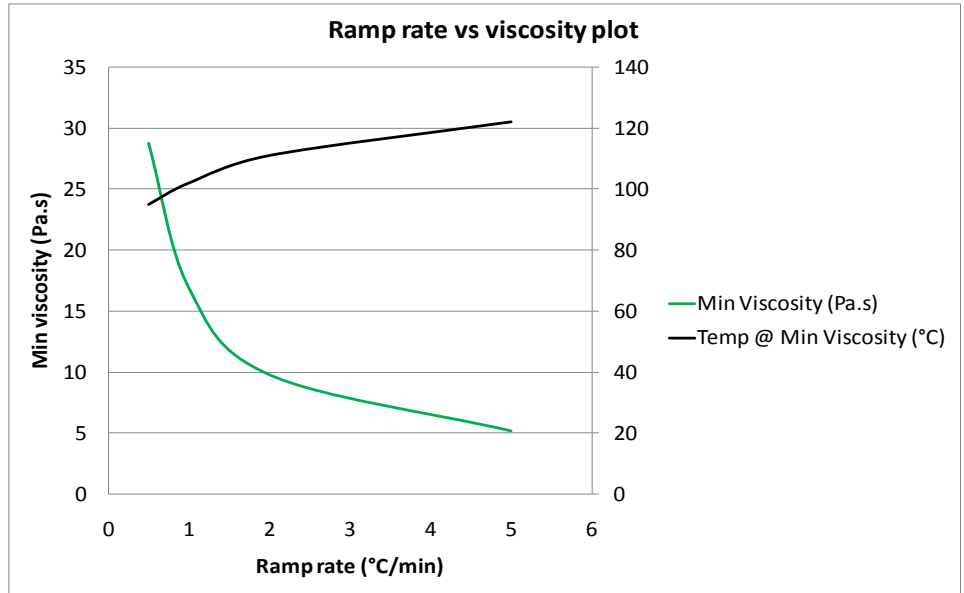
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### CURE PROPERTIES: VISCOSITY PROFILE (40°C TO 140°C OR 104°F TO 284°F)

Ramp rate [°C (°F)/min]	Min viscosity (Pa.s)	Temp @ min viscosity °C (°F)
0.5 (0.9)	28.73	95 (203)
1 (1.8)	16.87	102 (216)
2 (3.6)	9.75	111 (231)
5 (9)	5.14	122 (251)

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### TYPICAL CURE PROFILES

135°C (275°F) cure temperatures		
Ramp	2.0°C (3.6°F) / minute to 135°C (275°F)	Dwell for 1 hour
Cool	2.0°C (3.6°F) / minute to below 60°C (140°F)	Followed by demould
<b>Total time: 2 hours 35 minutes</b>		

### INITIAL MINIMUM CURE TIMES

Cure Cycle	Tg Onset (°C)	Tg Peak tan δ (°C)
16 hours at 80°C (176°F)	102	120
4 hours at 100°C (212°F)	119	148
1 hour at 135°C (275°F)	148	185
30 minutes at 150°C (302°F)	158	186
1 hour at 135°C (275°F) plus 2 hours at 180°C (356°F)	173	195

### TYPICAL LAMINATE PROPERTIES

#### E750-00 IM0221 - CARBON T800 200 GSM 2x2 T 6K 42% R.W. CURED 1 HR AT 135°C (275°F)

Property	Method	Test Temperature	
		RT	120°C (248°F)
Tensile Strength (MPa) - Warp	ISO 527-4	1038	1084
Tensile Modulus (GPa) - Warp	ISO 527-4	75.6	72.3
Tensile Strength (MPa) - Weft	ISO 527-4	1056	961
Tensile Modulus (GPa) - Weft	ISO 527-4	74	73.8
Poisson's Ratio	ISO 527-4	0.05	
Compression Strength (MPa) - Warp	prEN2580	748	613
Compression Modulus (GPa) - Warp	prEN2580	63.8	64.2
Compression Strength (MPa) - Weft	prEN2580	729	599
Compression Modulus (GPa) - Weft	prEN2580	64.9	64.9
In-Plane Shear Strength (MPa)	prEN6031	122	91.8
In-Plane Shear Modulus (GPa)	prEN6031	4.33	3.34
Poisson's Ratio	prEN6031	0.8	
ILSS Warp (MPa)	ASTM D2344	76.8	47.9
GIC (J/m <sup>2</sup> )	prEN6033	525	

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## TenCate E750

Versatile temperature curing epoxy resin component prepreg

E750-00 IM0326 - CARBON T1000 280 GSM 5HS 12K 42% R.W. CURED 1 HR AT 135°C (275°F)

Property	Method	Test Temperature	
		RT	120°C (248°F)
Tensile Strength (MPa) - Warp	ISO 527-4	1167	1232
Tensile Modulus (GPa) - Warp	ISO 527-4	72.5	69.5
Tensile Strength (MPa) - Weft	ISO 527-4	1249	1191
Tensile Modulus (GPa) - Weft	ISO 527-4	72.9	71.2
Poisson's Ratio	ISO 527-4	0.05	
Compression Strength (MPa) - Warp	prEN2580	623	514
Compression Modulus (GPa) - Warp	prEN2580	66.3	64
Compression Strength (MPa) - Weft	prEN2580	660	552
Compression Modulus (GPa) - Weft	prEN2580	67.7	64.4
In-Plane Shear Strength (MPa)	prEN6031	113	84
In-Plane Shear Modulus (GPa)	prEN6031	4.3	3.1
Poisson's Ratio	prEN6031	0.82	0.8
ILSS Warp (MPa)	ASTM D2344	67.7	47.3
GIC (J/m <sup>2</sup> )	prEN6033	696	

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TENCATE ADVANCED COMPOSITES

## TenCate E750

Versatile temperature curing epoxy resin component prepreg

**E750-00 HM0122 - CARBON M46J 200 GSM 2X2 T 6K 42% R.W CURED 1HR AT 135°C (275°F)**

Property	Method	Test Temperature	
		RT	120°C (248°F)
Tensile Strength (MPa) - Warp	ISO 527-4	639	839
Tensile Modulus (GPa) - Warp	ISO 527-4	110	110.3
Tensile Strength (MPa) - Weft	ISO 527-4	610	797
Tensile Modulus (GPa) - Weft	ISO 527-4	109	107.7
Poisson's Ratio	ISO 527-4	0.03	
Compression Strength (MPa) - Warp	prEN2580	478	476
Compression Modulus (GPa) - Warp	prEN2580	92.6	92.6
Compression Strength (MPa) - Weft	prEN2580	488	454
Compression Modulus (GPa) - Weft	prEN2580	93.2	93.2
In-Plane Shear Strength (MPa)	prEN6031	90	71
In-Plane Shear Modulus (GPa)	prEN6031	4.43	3.4
Poisson's Ratio	prEN6031	0.9	
ILSS Warp (MPa)	ASTM D2344	63.0	41.5
GIC (J/m <sup>2</sup> )	prEN6033	471	

## TenCate E750

### Versatile temperature curing epoxy resin component prepreg

#### 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.

#### EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat up rates or highly insulating masters. TenCate E750 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.

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*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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