

PRODUCT DATA SHEET

DESCRIPTION

Toray E726 is a toughened epoxy resin system with controlled flow for cures at 120°C (248°F), pre-impregnated into high performance fibers such as carbon, glass and aramid. It is designed for use within medical and industrial applications and would also suit a wide range of engineering applications. Toray E726 is compatible for co-cure with Toray EF72, a 120°C (248°F) cure resin film and Toray MicroPly™ SC72A syntactic core.

FEATURES

- ▶ **Controlled flow**
- ▶ **Excellent drapeability—complex shapes easily formed**
- ▶ **Good surface finish**
- ▶ **Excellent tack—easily laminates to mold surface**
- ▶ **Low volatile content—no solvents used during processing**
- ▶ **60 day shelf life at ambient temperature**
- ▶ **Autoclave, vacuum bag or press curable**

PRODUCT TYPE

120°C (248°F) Cure

Toughened Epoxy Resin System

TYPICAL APPLICATIONS

- ▶ Medical equipment
- ▶ Industrial equipment
- ▶ Wide range of engineering applications

SHELF LIFE

Out Life: 60 days at 20°C (68°F)

Storage Life: 12 months at -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.

TYPICAL NEAT RESIN PROPERTIES

Density	1.20 g/cm ³ (74.9 lbs/ft ³) at 23°C (73.4°F)
T _g (DMTA) after 1 hour at 120°C (248°F)	Onset: 105°C (221°F) Peak tan δ: 128°C (262°F)



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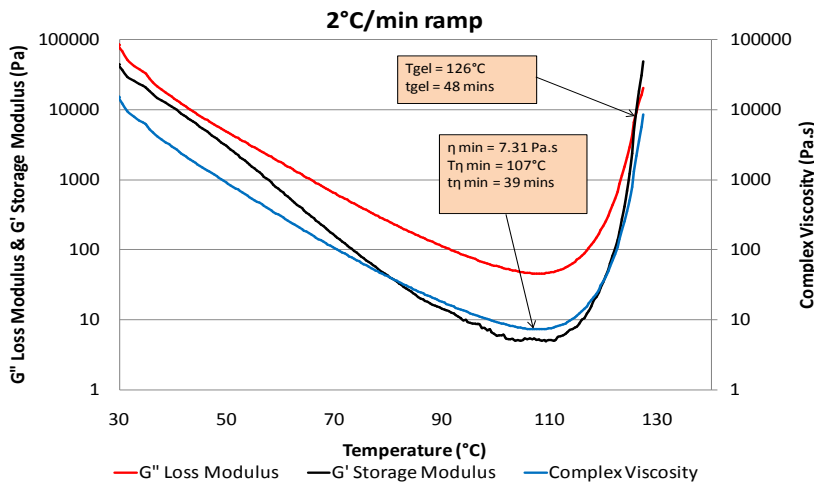
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TYPICAL LAMINATE PROPERTIES

HS0838 – Carbon 205 gsm 2X2 Twill TR30S T 3K - 0/90° Configuration Woven Laminates				
Property	Condition	Method	Laminate	
Tensile Strength 0°	RTD	ISO 527-4	689 MPa	100 ksi
Tensile Modulus 0°	RTD	ISO 527-4	54.7 GPa	7.9 Msi
Poisson's Ratio 0°	RTD	ISO 527-4	0.05	
Tensile Strength 90°	RTD	ISO 527-4	703 MPa	102 ksi
Tensile Modulus 90°	RTD	ISO 527-4	54.6 GPa	7.9 Msi
Poisson's Ratio 90°	RTD	ISO 527-4	0.05	
In-Plane Shear Strength	RTD	EN 6031	121 MPa	17.5 ksi
In-Plane Shear Modulus	RTD	EN 6031	3.6 GPa	0.5 Msi
Poisson's Ratio	RTD	EN 6031	0.8	
Compressive Strength 0°	RTD	EN 2850	577 MPa	83 ksi
Compressive Modulus 0°	RTD	EN 2850	51.3 GPa	7.4 Msi
Compressive Strength 90°	RTD	EN 2850	568 MPa	82 ksi
Compressive Modulus 90°	RTD	EN 2850	49.9 GPa	7.2 Msi
Interlaminar Shear Strength 0°	RTD	ISO 14130	65.5 MPa	9.5 ksi
Interlaminar Shear Strength 90°	RTD	ISO 14130	66.9 MPa	9.7 ksi

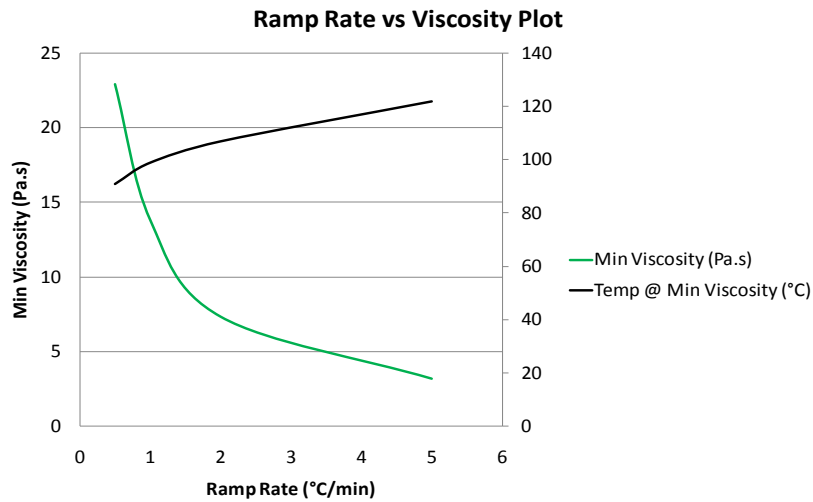
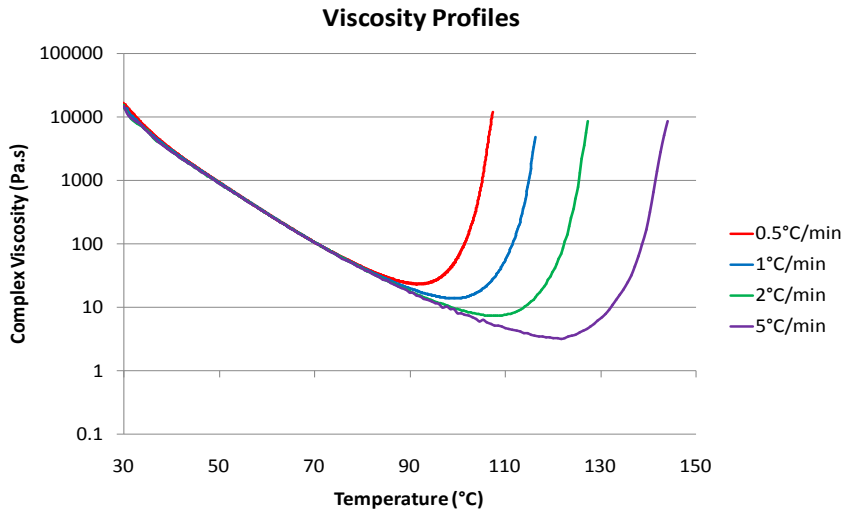
Cured 1 hour at 120°C (248°F) at 48% Vf

RHEOLOGY



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VISCOSITY



CURE PROPERTIES: VISCOSITY PROFILE (30°C TO 160°C OR 86°F TO 320°F)

Ramp rate [°C(°F)/min]	Minimum Viscosity (Pa.s)	Temperature at Minimum Viscosity
0.5 (1.0)	0.64	105°C (221°F)
1.0 (1.8)	0.45	117°C (243°F)
2.0 (3.6)	0.29	124°C (255°F)
5.0 (9.0)	0.17	133°C (232°F)

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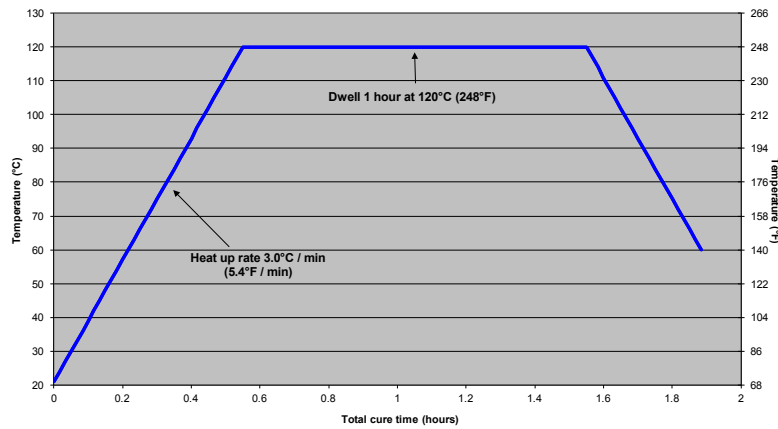
TYPICAL CURE PROFILE 120°C (248°F) CURE TEMPERATURE

Initial minimum cure time 120°C (248°F) for 1 hour

Ramp rate [°C(°F)/min]	Details
3.0°C (5.4°F)/minute to 120°C (248°F)	Dwell for 1 hour
2.0°C (3.6°F)/minute to 50°C (122°F)	Followed by demold

Total time: 1 hour 50 minutes

INITIAL MINIMUM 120°C CURE SCHEDULE



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EXOTHERM

In certain circumstances, such as the production of thick section laminates rapid heat-up rates or highly insulating masters, Toray E726 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.

HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials—wear gloves. For further information, refer to 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 nonperforated release film on the prepreg surface trimmed to within 25–30 mm of the prepreg edge is recommended for the cure cycle and a vacuum bag should be installed using standard techniques.