

Highly Toughened Epoxy Prepreg System

RP549

80 - 180°C Cure

Tg 214°C (DMA)

Applications

- Automotive
- Motorsport
- Marine
- Defence
- Sports and Leisure

Processing Methods

- Vacuum bag
- Autoclave
- Press moulding
- Tube rolling
- Pressure bag

TDS0003





Description

RP549 highly toughened modified epoxy prepreg has been specially formulated for the production of components requiring high mechanical properties and good impact resistance, particularly those exposed to elevated temperatures. This new system has an $>200^{\circ}\text{C}$ Tg following the 180°C cure cycle, and provides excellent mechanical properties in tensile, ILS and flexural strength.

RP549 is now in manufacture on a range of our high quality woven fabrics.

Cure Cycle

Standard Cure cycle:

- 1½ hrs at 120°C in autoclave, 6 bar pressure plus full vacuum
- Post cure 150°C for 2 hours is required after initial cure
- Ramp up rate: 2°C per min up to temperature
- Tg DMA onset: 160°C ; DMA tan delta peak: 195°C

Alternative cure cycle:

- 2°C per min to 180°C , dwell 2 hours
- Tg DMA tan δ : 214°C ; Tg DMA E' Onset: 195°C

Alternative temperatures for initial cure:

Temperature ($^{\circ}\text{C}$)	Duration (hrs)
70	24
80	16
90	8
100	4
110	2

Storage Conditions

Estimated results:

- Shelf life: 12 months at -18°C
- Out life: 21 days at 20°C

Note:

Health and Safety: Refer to the full Material Safety Datasheet before use.



Mechanical Properties

Mechanical Properties below are based on initial cure of 120°C for 90 minutes with 6.2 bar pressure, then post cure for 2 hours at 150°C.

Product: RP549C0887T27M401000

Fibre	Carbon	
Fabric Weave Style	Twill 2/2	
Fibre type	M40J-6K	
Fabric weight (g/m²)	200	
Resin content (%)	40	
Tensile Strength (MPa)	ASTM D3039	546.3
Tensile Modulus (GPa)	ASTM D3039	98.5
Interlaminar shear strength (ILSS) (MPa)	ASTM D2344	52
Flexural Strength (MPa)	ASTM D790	684

Product: RP549C0887T27M401000

Fibre	Carbon	
Fabric Weave Style	Twill 2/2	
Fibre type	TR30S	
Fabric weight (g/m²)	204	
Resin content (%)	40	
Tensile Strength (MPa)	ASTM D3039	696.7
Tensile Modulus (GPa)	ASTM D3039	61.9
Interlaminar shear strength (ILSS) (MPa)	ASTM D2344	66.4
Flexural Strength (MPa)	ASTM D790	797



Mechanical Properties

RP549 42% T1000 %H 280gsm 1250mm

Tensile Strength (MPa)	σ_{11T}	1200.76
Tensile Strength (MPa)	σ_{22T}	1061.78
Tensile Modulus (GPa)	E11T	71.75
Tensile Modulus (GPa)	E22T	67.86
Poisson Ratio (ν_{12})	ν	0.09
Poisson Ratio (ν_{21})	ν	0.09
Poisson Ratio ($\nu_{+/-45}$)	ν	1.02
Fracture Toughness (J/m²)	G1C	801.14
Inter-Laminar Shear Strength (MPa)	ILSS11	54.57
Inter-Laminar Shear Strength (MPa)	ILSS22	51.43

All values are nominal.

Find out what PRF can do for your business

Make an enquiry today at:

t: +44 (0) 1202 680022

e: enquiries@prfcomposites.com

www.prfcomposites.com

PRF Composite Materials

3 Upton Road

Poole

Dorset BH17 7AA

Important Notice

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