

RESIN SYSTEM DATA SHEET



NAME:	TC275-1 EPOXY
MANUFACTURER	TENCATE ADVANCED COMPOSITES
TYPE:	275-350°F (135-177°C) Cure Toughened Epoxy

PRODUCT DESCRIPTION:
 TC275-1 is a dual cure toughened epoxy prepreg designed to facilitate composite part construction with low pressure or vacuum pressure cures. The resin system features a 14 day tack life and 21 day total out time to allow the construction of thick or larger composite structure. TC275-1 may be cured at a lower temperature of 275°F/135°C or can be cured at 350°F/177°C for higher temperature service.

PRODUCT BENEFITS/FEATURES:	TYPICAL APPLICATIONS:
<ul style="list-style-type: none"> • High toughness • Excellent resistance to hot/wet exposure 	<ul style="list-style-type: none"> • Aircraft Structures • Thick parts cured under low pressure

NEAT RESIN PHYSICAL PROPERTIES:	
Resin Density:	1.17 g/cc
Resin Gel Time @ 275°F (135°C)	19 – 23 min.
Gel Time @ 350°F (177°C)	9 – 14 min.
Dynamic Viscosity	~12k cps @ 275°F (135°C) (- 3°F/min to 275°F to gel)
Tg by DMA w/Post Cure 350°F (177°C) 2 hours Dry	362°F (183°C)
Tg by DMA Wet (saturated @ 160°F (77°C) 85%RH)	277°F (136°C)

FABRIC LAMINATE PROPERTIES:					
Fabric data represents 2 x 2 Twill using HTS40 3k fiber, 193 faw, 42% RC					
	Property	Condition	Method	A - Cured at 275°F (135°C)	
	Tensile Strength 0°	RTD	ASTM D3039	146 ksi	1,003 MPa
	Tensile Modulus 0°	RTD	ASTM D3039	10.1 Msi	69.6 GPa
	Tensile Strength 0°	ETD	ASTM D3039	147 ksi	1,012 MPa
	Tensile Modulus 0°	ETD	ASTM D3039	10.9 Msi	75.2 GPa
	Tensile Strength 0°	ETW	ASTM D3039	141 ksi	972 MPa
	Tensile Modulus 0°	ETW	ASTM D3039	11.2 Msi	77.2 GPa
	Compressive Strength 0°	RTD	ASTM D695	134 ksi	923 MPa
	Compressive Modulus 0°	RTD	ASTM D695	10.4 Msi	71.7 GPa
	Compressive Strength 0°	ETD	ASTM D695	128 ksi	884 MPa
	Compressive Modulus 0°	ETD	ASTM D695	9.9 Msi	68.3 GPa
	Compressive Strength 0°	ETW	ASTM D695	114 ksi	783 MPa
	Compressive Modulus 0°	ETW	ASTM D695	9.8 Msi	67.6 GPa

FABRIC LAMINATE PROPERTIES: *(continued)*

Fabric data represents 2 x 2 Twill using HTS40 3k fiber, 193 faw, 42% RC

Property	Condition	Method	A - Cured at 275°F (135°C)	
Compressive Strength 0°	RTD	ASTM D6641	106 ksi	731 MPa
Compressive Strength 0°	ETD	ASTM D6641	99 ksi	681 MPa
Compressive Strength 0°	ETW	ASTM D6641	90 ksi	621 MPa
In Plane Shear Strength	RTD	ASTM D3846	24 ksi	166 MPa
In Plane Shear Modulus	RTD	ASTM D3846	0.7 Msi	4.8 GPa
In Plane Shear Strength	ETD	ASTM D3846	21 ksi	141 MPa
In Plane Shear Modulus	ETD	ASTM D3846	0.6 Msi	4.3 GPa
In Plane Shear Strength	ETW	ASTM D3846	15 ksi	104 MPa
In Plane Shear Modulus	ETW	ASTM D3846	0.5 Msi	3.4 GPa
Open Hole Tensile Strength	RTD	ASTM D5766	63 ksi	434 MPa
Open Hole Tensile Strength	ETD	ASTM D5766	64 ksi	444 MPa
Open Hole Tensile Strength	ETW	ASTM D5766	62 ksi	429 MPa
Open Hole Comp. Strength	RTD	ASTM D6484	54 ksi	371 MPa
Open Hole Comp. Strength	ETD	ASTM D6484	49 ksi	338 MPa
Open Hole Comp. Strength	ETW	ASTM D6484	44 ksi	304 MPa
Flexural Strength 0°	RTD	ASTM D790	181 ksi	1,251 MPa
Flexural Modulus 0°	RTD	ASTM D790	8.7 Msi	60.0 GPa
Flexural Strength 0°	ETD	ASTM D790	158 ksi	1,086 MPa
Flexural Modulus 0°	ETD	ASTM D790	8.7 Msi	60.0 GPa
Flexural Strength 0°	ETW	ASTM D790	146 ksi	1,007 MPa
Flexural Modulus 0°	ETW	ASTM D790	8.6 Msi	59.3 GPa

Results above were normalized to 60%. Soak condition 160°F/71°C, 85%RH to saturation.

1. Cure A results, ETD and ETW tested at 180°F/82°C

source: <https://www.tencatecomposites.com/product-explorer/products/hKxc/TC275-1>prepared by: Elevated Materials (www.elevatedmaterials.com)