

PRODUCT NOTES

The 2700 prepreg system is specifically formulated for heat resistance and low water absorption which makes it suited for applications where it is exposed to high heat and high humidity environments. It is a rapid cure system that enables parts to be cured in a press mold in five minutes at 300°F (149°C). 2700 has excellent all-around properties and has low void content and optimized tack. Customers using Toray's 2510 and 2511 resin system may easily adopt 2700 with minimal impact on their production environment. Applications include aerospace primary or secondary structure components and industrial applications.



Flexible Cure Methods

Proven flexibility in curing and consistency in mechanical properties has been achieved by oven cure, autoclave, and compression molding.



Resin Chemistry

Patented system features unmatched cure speed in aerospace epoxies while also minimizing exotherm potential for thick laminates.



Customizable Forms

Compatible with multiple applications, including AFP, ATL, and hand layup. Multiple widths and roll configurations available.



High Heat Tolerance

High T_g and hot/wet performance enable retention of critical properties like open-hole compression to 180°F (82°C) without compromising material toughness.



Toughened

High strength fiber is combined with particulate toughening to reduce delamination and increase fracture toughness, impact resistance, and environmental resistance.



Rate Ready

Single system seamlessly transitions from R&D to to Low Rate Initial Production (LRIP) to Full Rate Production (FRP) with equivalent datasets enabling go-to-market success.

PRODUCT SPECIFICATIONS

2700 has been tested using the following product forms, however final configurations are possible with numerous types of TORAYCA™ unidirectional carbon fibers and other woven carbon or glass fabrics with Fiber Areal Weight (FAW) ranging from 70 g/m² to 300 g/m² and Resin Content, (Rc %) by weight percent, ranging from 24% to 46%.

PART NUMBER	FIBER FORMAT	FIBER TYPE/STYLE	FAW (GSM)	RC % WEIGHT	ROLL WIDTH (IN)
F6273C-T2XM-965	Plain Weave	T700S-12K	190	42	38
FT6243R-T2XM-965	Spread Plain Weave	T1100G-12K	196	42	38

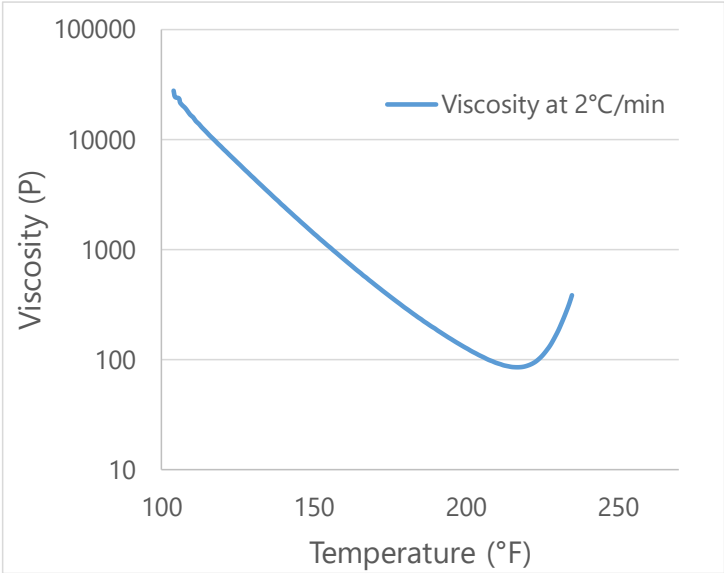
STORAGE LIFE

Out Time (Mechanical Life)	28 days @ < 77°F (25°C)
Freezer Life	2 years @ < 10°F (-12°C)

NEAT RESIN PHYSICAL PROPERTIES

PROPERTY	METHOD	UNITS	VALUE
Density	ASTM D792	g/cm ³	1.263
Tg (Dry)	ASTM D7028	°F (°C)	375 (191)
Tg (Wet)	ASTM D7028	°F (°C)	294 (146)
Minimum Viscosity	ASTM D4440	Poise @ °F (°C)	84.9 @ 217 (103)

RESIN VISCOSITY CURVE



LAMINA/LAMINATE MECHANICAL PROPERTIES: F6273C-T2XM-965 (T700S-12k PW/Gr 190)

PROPERTY	SYMBOL	METHOD	UNITS	OVEN CURE			PRESS CURE		
				CTA	RTA	ETW	CTA	RTA	ETW
90° Tensile Strength	F _{2T}	ASTM D3039	Ksi (MPa)	149 (1027)	153 (1056)	-	133 (914)	140 (968)	-
90° Tensile Modulus	E _{2T}	ASTM D3039	Msi (GPa)	8.33 (57.4)	8.45 (58.3)	-	8.1 (55.8)	8.22 (56.7)	-
90° Compressive Strength	F _{2C}	ASTM D6641	Ksi (MPa)	-	104 (716)	78 (538)	-	110 (758)	87 (603)
90° Compressive Modulus	E _{2C}	ASTM D6641	Msi (GPa)	-	7.63 (52.6)	7.67 (52.9)	-	7.31 (50.4)	6.84 (47.2)
In-Plane Shear Strength @ 5%	F _{12 @ 5%}	ASTM D5379	Ksi (MPa)	-	11.2 (77)	7.1 (49)	-	10.2 (70)	6.7 (46)
In-Plane Shear Modulus	G ₁₂	ASTM D5379	Msi (GPa)	-	0.62 (4.27)	0.45 (3.10)	-	0.66 (4.55)	0.41 (2.81)
Short Beam Strength	SBS	ASTM D2344	Ksi (MPa)	-	8.32 (57)	5.85 (40)	-	8.6 (59)	5.6 (39)
Open Hole Compression Strength (QI: 25/50/25)	OHC	ASTM D6484	Ksi (MPa)	-	40.2 (277)	33.5 (231)	-	39.2 (270)	34.5 (238)
Compression After Impact @ 1500in-lb/in (QI: 25/50/25)	CAI	ASTM D7137	Ksi (MPa)	-	23.6 (163)	-	-	23.8 (164)	-
Laminate Density	P	ASTM D792	g/cm ³	1.504			1.511		
Fiber Volume	V _F	ASTM D3171	%	48.0			49.4		
Cured Ply Thickness	CPT	ASTM D3171	In. (mm)	0.0086 (0.217)			0.0083 (0.211)		

Notes:
CTA: -65°F/-54°C, as-received
RTA: 72°F/22°C, as-received
ETW: 180°F/82°C, 2-week soak at 160°F/71°C

LAMINA/LAMINATE MECHANICAL PROPERTIES: FT6243R-T2XM-965 (T1100G-12K PW/Gr196)

PROPERTY	SYMBOL	METHOD	UNITS	OVEN CURE			AUTOCLAVE CURE		
				CTA	RTA	ETW	CTA	RTA	ETW
90° Tensile Strength	F _{2t}	ASTM D3039	Ksi (MPa)	180 (1241)	192 (1324)	-	173 (1193)	190 (1310)	-
90° Tensile Modulus	E _{2t}	ASTM D3039	Msi (GPa)	11.1 (76.5)	11.3 (77.9)	-	10.9 (75.2)	10.9 (75.2)	-
90° Compressive Strength	F _{2c}	ASTM D6641	Ksi (MPa)	-	107 (738)	86.0 (593)	-	106 (731)	82.8 (571)
90° Compressive Modulus	E _{2c}	ASTM D6641	Msi (GPa)	-	9.91 (68.3)	10.1 (69.6)	-	9.83 (67.8)	9.99 (68.9)
In-Plane Shear Strength @ 5%	F _{12 @ 5%}	ASTM D5379	Ksi (MPa)	-	13.93 (96)	8.61 (59.4)	-	13.5 (93.1)	8.5 (58.6)
In-Plane Shear Modulus	G ₁₂	ASTM D5379	Msi (GPa)	-	0.67 (4.62)	0.45 (3.10)	-	0.66 (4.55)	0.47 (3.24)
Short Beam Strength	SBS	ASTM D2344	Ksi (MPa)	-	9.78 (67.4)	7.78 (53.6)	-	9.24 (63.7)	7.5 (51.7)
Open Hole Compression Strength (QI: 25/50/25)	OHC	ASTM D6484	Ksi (MPa)	-	41.1 (283)	35.0 (241)	-	40.9 (282)	35.2 (243)
Compression After Impact (QI: 25/50/25)	CAI	ASTM D7137	Ksi (MPa)	-	31.1 (214)	-	-	30.7 (212)	-
Laminate Density	ρ	ASTM D792	g/cm ³	1.515			1.520		
Fiber Volume	V _F	ASTM D3171	%	49.2			49.5		
Cured Ply Thickness	CPT	ASTM D3171	In. (mm)	0.0088 (0.223)			0.0086 (0.219)		

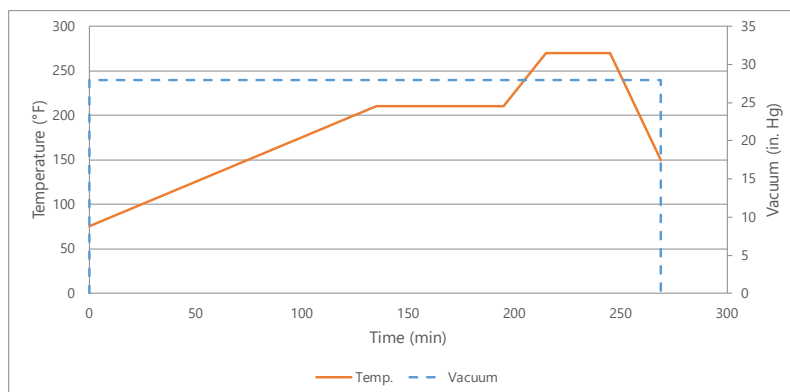
CURE CYCLE - OVEN

1. Apply full vacuum* to the part. Maintain vacuum for at least three hours prior to beginning cure cycle is recommended for optimal part quality.
2. Ramp to 210 ± 10°F (100 ± 5°C) at a rate of 1-3°F (1.7 ± 1.1°C) per minute.
3. Hold for 60 minutes at 210 ± 10°F (100 ± 5°C).
4. Ramp to 270 ± 10°F (132 ± 5°C) at a rate of 3.0 ± 2.0°F (1.7 ± 1.1°C) per minute.
5. Hold for 30 minutes at 270 ± 10°F (132 ± 5°C).
6. Cool vessel to 140°F (60°C) or lower at a maximum rate of 5°F (2.8°C).

2700 can be cured using a press mold in under 5 minutes. Contact us for recommendations specific to the tooling and press capability.

CURE CYCLE - AUTOCLAVE

1. Use the same temperature cycle as the oven with 85 +15/-0 psi (586+100/-0 kPa) autoclave pressure.
2. Vent vacuum bag when pressure reaches 20 psi (138 KPa)



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