G-83C Data Sheet

TORAY
Innovation by Chemistry

This resin system provides a quick cure (290°F for 20 min) or a low temperature cure (185°F for 6 hours) with the capability to achieve class "A" surface finish. Quick cure cycles are used where high-cycle applications are required and lower temperature cure applications would be marine or where mold material is heat sensitive. G-83C can be used in a variety of other applications such as industrial and aircraft grade products.

Typical Curing Results

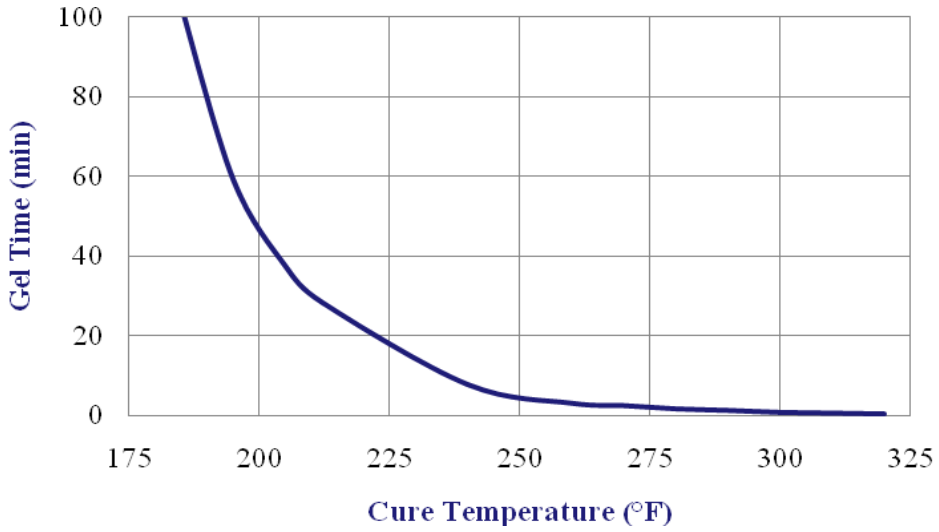
Cure Temperature *(°F)*	Gel Time *(Minutes)*	90% Cure Time *(Minutes)*	95% Cure Time *(Minutes)*	99% Cure Time *(Minutes)*	T_G (max G") *(°F)*
185	103.0	214.4	239.7	345.6	235
205	37.6	86.2	107.9	194.6	276
240	7.8	22.6	28.5	72.6	303
270	2.5	12.5	17.5	50.1	319
290	1.3	15.0	21.0	40.0	323
300	0.8	19.6	25.5	39.4	320

Data obtained through DMA analysis of raw resin

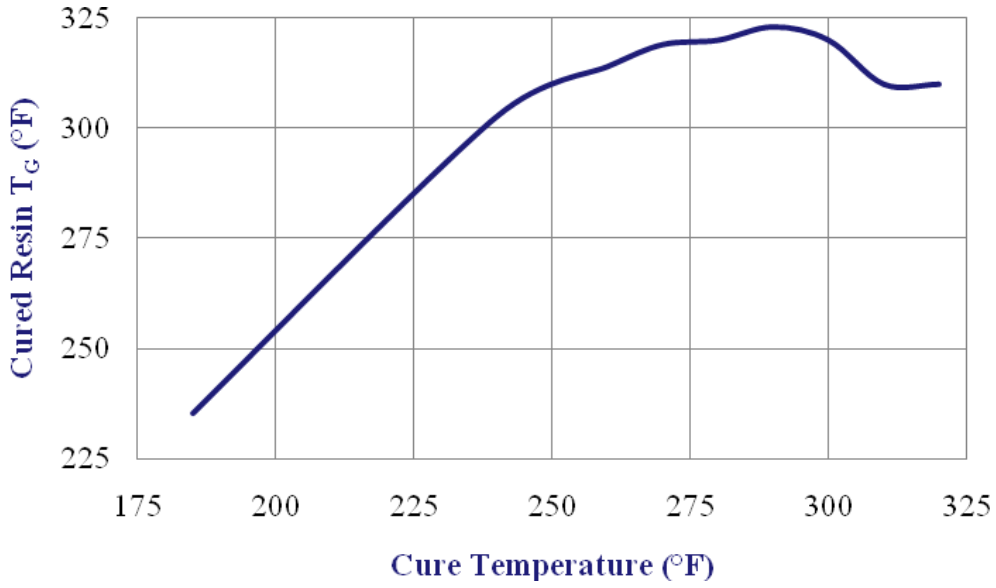
Neat Resin Mechanical Data

Property		Value	Test Method
Compression	*Strength (ksi)*	18.5	ASTM D 695
	Modulus (ksi)	487	
	Offset Yield (ksi)	9.5	
K_{IC}	*(psi*√in)*	1.01	ASTM D 5045-99
Flexure	*Strength (ksi)*	21.2	ASTM D 790
	Modulus (ksi)	502	
	Offset Yield (ksi)	14.8	
	Strain (%)	5.7	

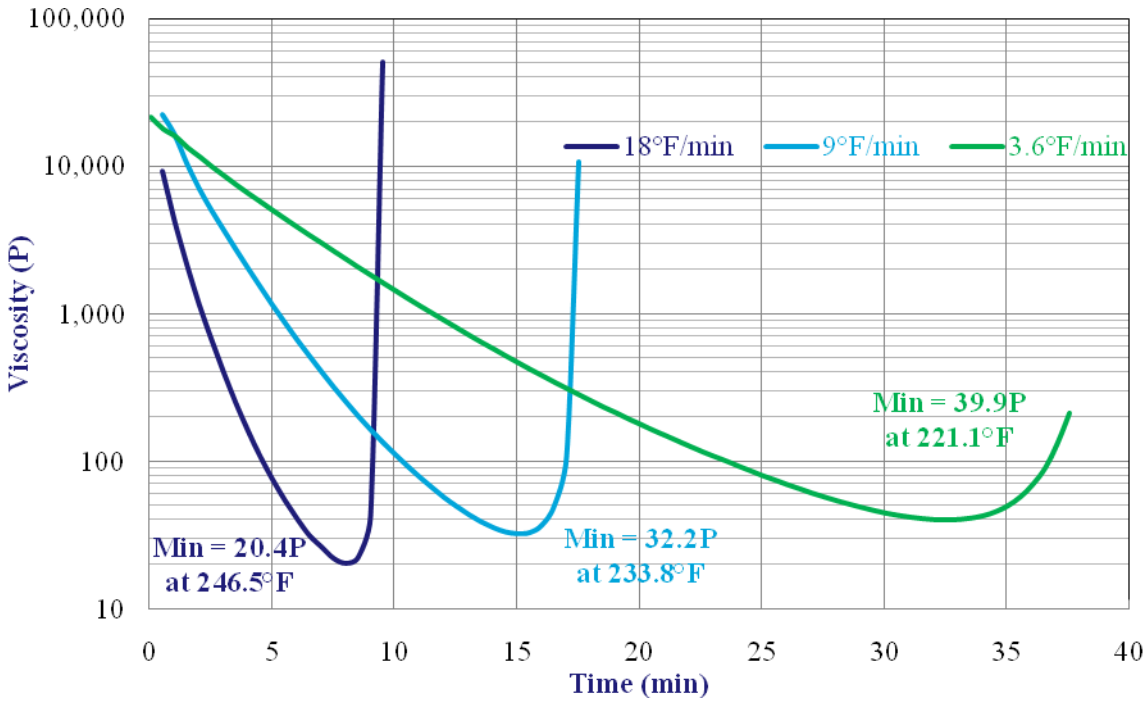
Gel Time Cure Profile



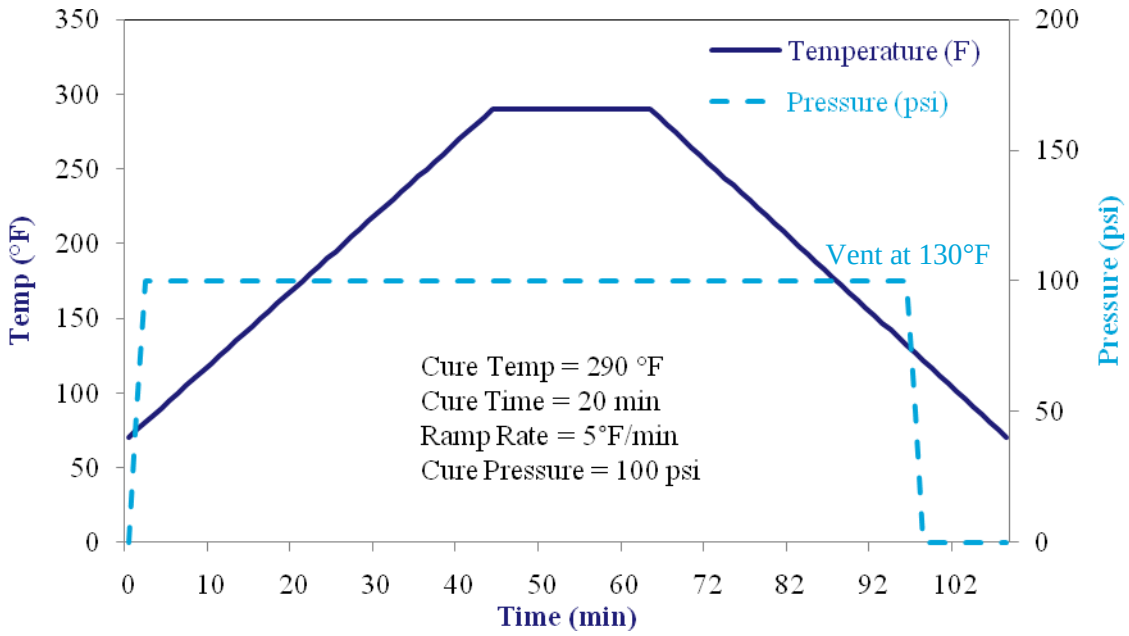
Glass Transition Temperature (T_G) Dependency on Cure Temperature



Viscosity Profile



Sample Quick Cure Cycle (290°F cure)



Availability

G-83C resin is available with numerous types of unidirectional carbon fibers and woven carbon and glass fabrics with Fiber Areal Weight (FAW) ranging from 70 g/m^2 to 300 g/m^2 and Resin Content, (RC %) by weight percent, ranging from 24% to 44%.

Typical Laminate Properties with T700S-12K at 90 g/m^2 FAW and 35% RC

Property		Value	Test Method
0° Tension*	*Strength (ksi)*	448	ASTM D 3039
	Modulus (msi)	20.5	
	Strain (%)	2.0	
90° Tension	*Strength (ksi)*	8.6	
Compression*	*Strength (ksi)*	203	SRM 1R-94
± 45° IPS	*Strength (ksi)*	20.6	ASTM D 3518
Short Beam Shear	*Strength (ksi)*	13.0	ASTM D 2344
Flexure*	*Strength (ksi)*	265	ASTM D 790
	Modulus (msi)	17.8	

**normalized to 60% Vf*
Data obtained from using cure cycle listed above