

Newport 304-1

Description:

Newport 304-1 is a 250°F to 300°F cure, highly toughened, controlled flow epoxy resin system. Versatile processing, excellent mechanical properties, and long out-life make Newport 304-1 suitable for a variety of applications.

Application:

Superior toughness and impact resistance make Newport 304-1 well suited for structural applications in sporting goods, marine, medical, and industrial applications.

Newport 304-1 can be supplied with most commercially available fibers in both woven form (designated as NB) as well as unidirectional tape (designated as NCT), including:

- Carbon
- Quartz
- Aramid
- S-glass
- E-glass
- Other specialty fibers and fabrics

Woven fabrics are available in standard commercial widths up to 60 inches. Unitape widths up to 39 inches (1M) are available in standard fiber weights ranging from 110 to 300 gsm.

Benefits/Features:

- High toughness / Impact resistance
- Excellent mechanical properties
- Controlled flow
- Moderate tack
- 30 days out-life at 70°F
- Available on a wide range of unidirectional fibers and fabrics

Recommended Processing Conditions:

Newport 304-1 can be cured at temperatures from 250°F to 300°F depending on service temperature requirements. Low, medium, and high pressure molding techniques may be used to cure 304-1 resin. Recommended cure cycle is 50 psi; 3°F/min ramp to 275°F; hold for 60 minutes, cool to <140°F.

Physical Properties*:

Gel Time (275°F):	3-5 minutes
Specific Gravity:	1.20 ± 0.02
T _g (DMA,E')	260°F.

Mechanical Properties:**3k Plain Weave Carbon reinforcement**

The mechanical property data supplied in the following table are average values obtained from NB-304-1 with 3k plain weave carbon fabric. All values are based using a hot press cure, 275°F hold for 1 hour at 50psi.

	Test Method	RT*	160°F*	200°F*
Tensile strength, ksi	ASTM D-638 Type I	85	78	75
Tensile modulus, Msi		9.0	8.9	8.8
Strain, μ in/in		9800	8800	8500
Compression strength, ksi	SACMA SRM 1R-94	68	56	54
Compression modulus, Msi		8.0	7.4	7.1
Flexural strength, ksi	ASTM D-790	115	99	82
Flexural modulus, Msi		7.4	7.1	6.9
Short Beam Shear strength, ksi	ASTMD-2344	9.3	6.7	5.9

Wet = 14 day water immersion at 160°F.	Test Method	RT*	160°F*
Tensile strength, ksi	ASTM D-638 Type I	78	71
Tensile modulus, Msi		8.9	8.2
Compression strength, ksi	SACMA SRM 1R-94	55	38
Compression modulus, Msi		7.3	7.0
Flexural strength, ksi	ASTM D-790	100	69
Flexural modulus, Msi		7.3	6.1
Short Beam Shear strength, ksi	ASTM D-2344	6.7	4.0

* Values are average and do not constitute a specification

Standard Modulus Unidirectional Carbon Fiber tape reinforcement

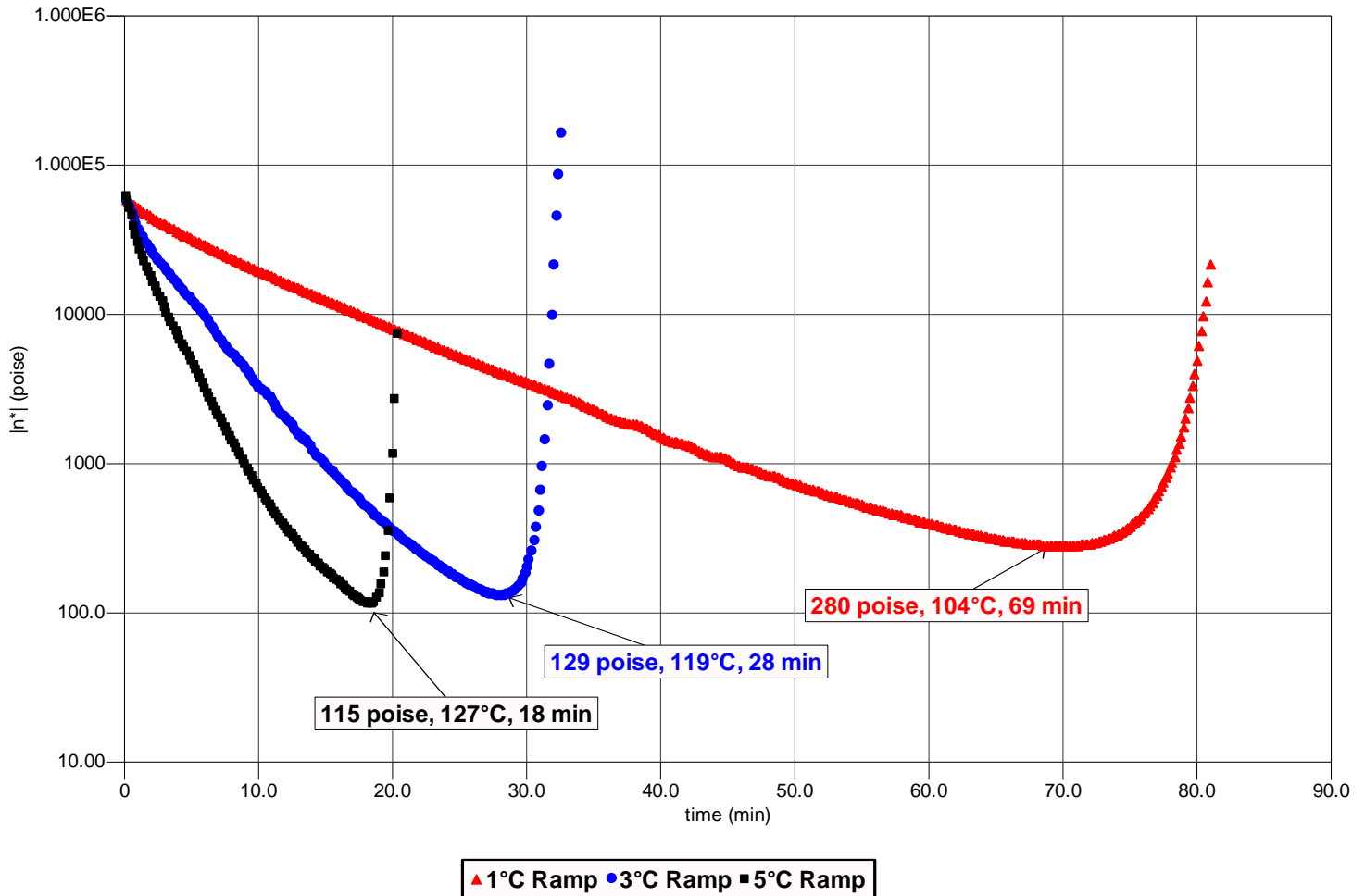
The mechanical property data supplied in the following table are average values obtained from NCT-304-1 with standard modulus carbon fiber at 42% RC. All values are based using a press cure at 275° F for 60 minutes and 50 psi.

	Test Method	RT*	160°F*	200°F*
0° Tensile strength, ksi	ASTM D-3039	289	277	--
0° Tensile modulus, Msi		18.7	17.8	--
Poisson's ratio		0.303	--	--
0° Compression strength, ksi	SACMA SRM 1R-94	138	117	97
0° Compression modulus, Msi		18.0	16.4	15.7
0° Flexural strength, ksi	ASTM D-790	282	212	172
0° Flexural modulus, Msi		18.0	17.1	16.0
0° Short Beam Shear str, ksi	ASTM D-2344	13.2	12.0	9.4

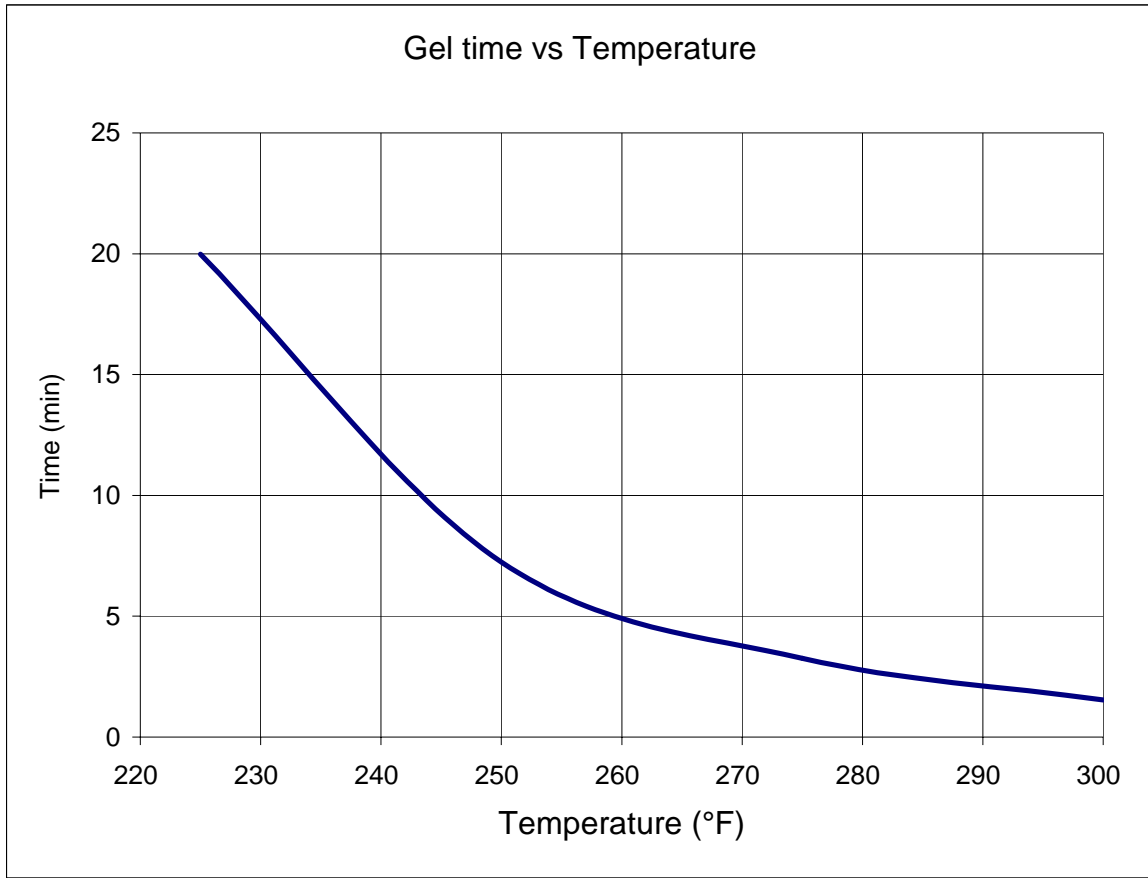
Melt Viscosity Profile of Newport 304-1

A TA (model AR2000) parallel plate rheometer was used to determine the melt viscosity profile of the neat resin system.

Newport NB 304-1 Viscosity vs Time



Gel Curve Profile of Newport 304-1



Prepreg Storage:

Material can be stored at 40°F for 3 months, or 0°F for 6 months.

Availability:

Newport 304-1 is available on a wide variety of woven fabrics and unidirectional tapes including aramid, E-glass, S-glass, carbon, and other fibers. Tack, flow and other properties can be tailored to meet your specific requirements. Contact Newport about any specialty fibers or requirements.

For orders, pricing, availability, technical assistance or other inquiries please contact:

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