
Newport 4746

Description:

Newport 4746 is a 250°F to 300°F cure, flame retardant, toughened modified epoxy resin system designed for use in applications requiring a high level of flame retardancy. Newport 4746 meets the requirements of FAR 25 Appendix F part I, IV, V.

Application:

Newport 4746 is suitable for a wide range of flame retardant applications, but is specifically formulated for aircraft interior applications where flame retardant, smoke density, and heat release requirements must be met.

Newport 4746 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
- S-glass
- E-glass
- Other specialty fibers and fabrics

Woven fabrics are available in standard commercial widths up to 50 inches. Unitape widths up to 39 inches (1M) are available in standard fiber weights ranging from 90 to 300 gsm.

Benefits/Features:

- Flame retardant
- Excellent mechanical properties
- Meets FAR 25 Appendix F part I flammability requirements
- Meets FAR 25 Appendix F part IV heat release requirements
- Meets FAR 25 Appendix F part V smoke release requirements
- Passes UL-94 Vo requirements
- 30 days out-life at 70°F
- Available on a wide range of unidirectional fibers and fabrics

Recommended Processing Conditions:

Newport 4746 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 for curing. Recommended cure cycle is 50psi, 3°F/min ramp to 275°F, hold for 60 minutes, cool to <140°F.

Physical Properties*:

Gel Time (275°F):	5.4 min
Specific Gravity:	1.55 ± 0.02
Tg dry (DMA, E'):	290°F
Tg wet (DMA, E'):	235°F

Mechanical Properties:**MR60H intermediate modulus carbon fiber reinforcement**

The mechanical property data supplied in the following table are average values obtained from NB-4746 with MR60H IM carbon fiber. All values are based using an autoclave cure, 5°F/min to 275°F, 60 minute hold, and 50psi pressure.

NCT4746 MR60H G145 32%		
	Test Method	RT*
0° Tensile strength (ksi)	ASTMD-3039	430
0° Tensile modulus (Msi)		26
0° Compression strength (ksi)	SACMA SRM 1-94	230
0° Flexural strength (ksi)	ASTMD-790	305
0° Flexural modulus (Msi)		28.5
0° Short Beam Shear strength (ksi)	ASTMD-2344	16

* Values are average and do not constitute a specification

Fire Retardant properties on IM MR60H G145 32%

FAR 25 Appendix F Part I			
	Self- extinguish, Time after flame removal	Maximum, Burn Length	Drip Self- extinguish Time
60 sec. Vertical flame test requirements	15 sec.	6"	3 sec.
NCT4746 MR60H	0 sec.	2.5"	0 sec.
	Self- extinguish, Time after flame removal	Average afterglow time	Flame penetration
45° Flame test requirements	15 sec	10sec	none
NCT4746 MR60H	0 sec	0 sec	none

FAR 25 Appendix F Part IV (OSU heat release rate)			
Specimen thickness: 0.029"	NCT4746 MR60H	Test requirement	
Heat release rate @2 min. (kW-min/m ²)	32	65	
Peak Heat release rate (kW/m ²)	40	65	
Time to peak heat (sec)	32	--	

FAR 25 Appendix F Part V (Smoke Emission)			
Specimen thickness: 0.029"	NCT4746 MR60H	Test requirement	
4 mins, Optical Density (D max)	122	200	

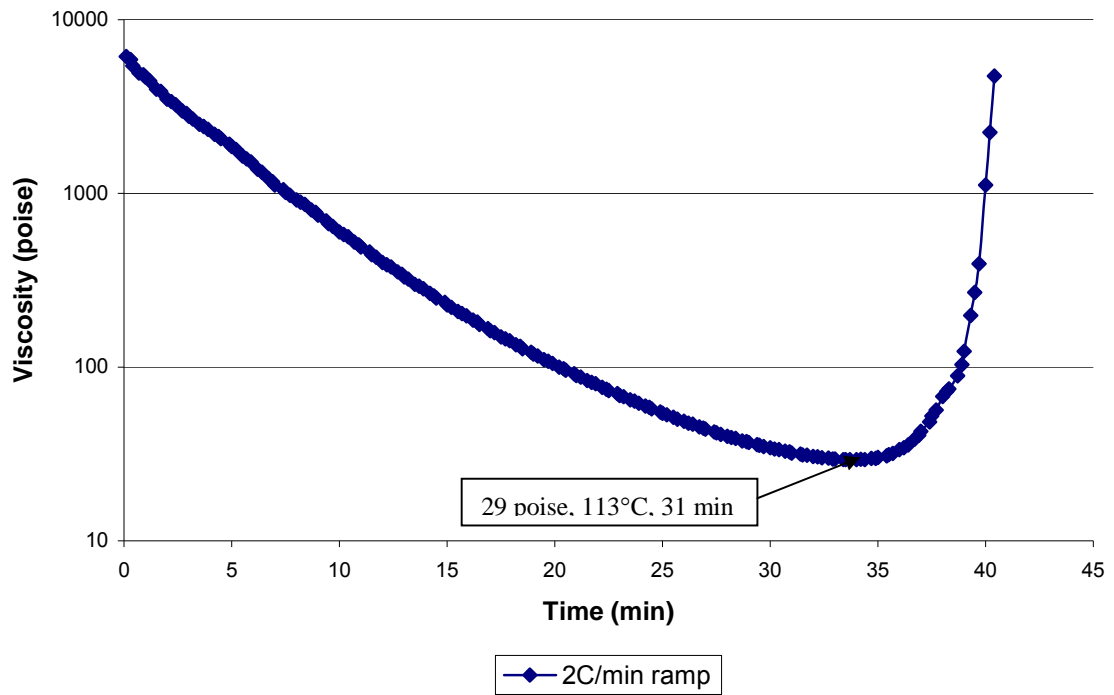
UL94 Vo			
Specimen thickness: ≤0.11"	NCT4746 MR60H	Test requirement	
Afterflame time (t1 or t2)	0	≤10 sec	
Total afterflame time (t1+t2)	0	≤50 sec	
Afterflame plus afterglow (t2+t3)	0	≤30 sec	
Afterflame or afterglow to holding clamp	No	No	
Cotton indicator ignition	No	No	

* Values are average and do not constitute a specification

Melt Viscosity Profile of Newport 4746

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

Viscosity vs. Time



Prepreg Storage:

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

Availability:

Newport 4746 is available on a wide variety of woven fabrics and unidirectional tapes including, 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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