

Park Electrochemical Nelcote® F-555 Phenolic Prepreg, NARC/CYDSA Reinforced

Category : Polymer , Thermoset , Phenolic

Material Notes:

Nelcote® F-555 is a carbon-filled MIL-R-9299 phenolic resin optimized for coating Carbonized Rayon cloth. F-555 is used extensively in the manufacture of high temperature rocket nozzles, heat shields, and combustion chambers. Key Features and Benefits: Provides a combination of high-strength and ablative properties for demanding applications. Low thermal expansion. Good Tack and Drape properties. Applications/Qualifications: Rocket Nozzles, Combustion Chambers, Heat Shields, Rocket Motor Throat Sections. Typical values for carbonized rayon fabric. Information provided by Park Electrochemical Corp.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Park-Electrochemical-Nelcote-F-555-Phenolic-Prepreg-NARCCYDSA-Reinforced.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.45 g/cc	1.45 g/cc	8HS form; ASTM D792
Volatiles	2.0 - 8.0 % @Temperature 163 °C	2.0 - 8.0 % @Temperature 325 °F	5 min
Thickness	406 microns	16.0 mil	per ply, 8HS form

Mechanical Properties	Metric	English	Comments
Hardness, Barcol	75	75	8HS form; ASTM D2583
Tensile Strength, Yield	179 MPa @Temperature 23.9 °C	26000 psi @Temperature 75.0 °F	0° Direction, Dry; 8HS form; ASTM D638
Tensile Modulus	16.5 GPa @Temperature 23.9 °C	2400 ksi @Temperature 75.0 °F	0° Direction, Dry; 8HS form; ASTM D638
Flexural Strength	228 MPa @Temperature 23.9 °C	33000 psi @Temperature 75.0 °F	Dry; 8HS form; ASTM D790
Flexural Modulus	16.5 GPa @Temperature 23.9 °C	2400 ksi @Temperature 75.0 °F	Dry; 8HS form; ASTM D790
Compressive Strength	317 MPa @Temperature 23.9 °C	46000 psi @Temperature 75.0 °F	Dry; 8HS form; ASTM D695
Compressive Modulus	15.2 GPa @Temperature 23.9 °C	2200 ksi @Temperature 75.0 °F	Dry; 8HS form; ASTM D695

Thermal Properties	Metric	English	Comments
CTE, linear	7.20 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	4.00 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	with ply; 8HS form; ASTM D696
	@Temperature 204 $^{\circ}\text{C}$	@Temperature 400 $^{\circ}\text{F}$	
	12.2 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	6.80 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	x-ply; 8HS form; ASTM D696
	@Temperature 204 $^{\circ}\text{C}$	@Temperature 400 $^{\circ}\text{F}$	
Specific Heat Capacity	1.17 $\text{J}/\text{g}\cdot^{\circ}\text{C}$	0.280 $\text{BTU}/\text{lb}\cdot^{\circ}\text{F}$	8HS form; ASTM C351
Thermal Conductivity	0.0850 $\text{W}/\text{m}\cdot\text{K}$	0.590 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}^2\cdot^{\circ}\text{F}$	x-ply; 8HS form; ASTM C177
	@Temperature 149 $^{\circ}\text{C}$	@Temperature 300 $^{\circ}\text{F}$	
	0.133 $\text{W}/\text{m}\cdot\text{K}$	0.920 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}^2\cdot^{\circ}\text{F}$	with-ply; 8HS form; ASTM C177
	@Temperature 149 $^{\circ}\text{C}$	@Temperature 300 $^{\circ}\text{F}$	

Processing Properties	Metric	English	Comments
Shelf Life	6.00 Month	6.00 Month	
	@Temperature 4.44 $^{\circ}\text{C}$	@Temperature 40.0 $^{\circ}\text{F}$	

Descriptive Properties	Value	Comments
Fabric Area Weight (g/m^2)	270	
Filler Content (%)	8-16	
Prepreg Resin Content (%)	31-37	
Resin Flow (%)	5-25	325 $^{\circ}\text{F}$, 150psi

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