

Nanocyl EPOCYL™ NC R2HM-01 Formulated Epoxy-Carbon Nanotube Pre-preg Resin System

Category : Polymer , Thermoset , Epoxy , Epoxy/Carbon Fiber Composite

Material Notes:

EPOCYL™ NC R2HM-01 is a formulated epoxy based resin system for hot melt pre-preg and pressure molding processes, modified with our own Carbon Nanotubes (CNT), specifically developed to enhance the mechanical properties of the final fiber reinforced composite materials. Applications: High performance composite parts Automotive (bumpers and other structural parts) Marine, especially sailing boats (structural outer shell in carbon fiber composite, masts and other generic structural parts) Industrial parts (rollers, doctor-blades and wind-mill blades) Sporting equipments (bike frames, hockey sticks, tennis rackets, skis and golf shafts) Aerospace (structural parts and interiors) Advantages Improved fracture toughness (G1C) of over 100% Improved strength perpendicular to, and at +/- 45° to fiber direction of over 15% Reduced CTE of over 15% Easy and ready to use system for hot melt pre-preg processes Higher uniformity of temperature during curing (avoids hot-spots) Curing agents EPOCYL™ NC R2HM-01 can be cured or cross-linked with different types of curing agents depending on the properties desired in the final composite. The type of curing agent suggested is Aradur 5021 (Huntsman). Anyhow, any curing agents based on dicyandiamide are the preferred ones to be used in combination with EPOCYL™ NC R2HM-01. It is important to respect the ratio hardener/accelerator with the epoxy equivalent of the EPOCYL™ NC R2HM-01.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Nanocyl-EPOCYL-NC-R2HM-01-Formulated-Epoxy-Carbon-Nanotube-Pre-preg-Resin-System.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.15 - 1.20 g/cc	1.15 - 1.20 g/cc	

Mechanical Properties	Metric	English	Comments
Tensile Strength	200 MPa	29000 psi	In Fiber direction +/- 45° to tensile axis; ASTM D3039 and D3518
	1750 MPa	254000 psi	Longitudinal tensile test (fiber direction)_These values are normalized to 60% of fiber volume fraction; ASTM D3039
Elongation at Break	0.90 %	0.90 %	Transversal tensile test; ASTM D3039
	1.4 %	1.4 %	Longitudinal tensile test (fiber direction)_These values are normalized to 60% of fiber volume fraction; ASTM D3039
	11 %	11 %	In Fiber direction +/- 45° to tensile axis; ASTM D3039 and D3518
Tensile Modulus	6.60 GPa	957 ksi	Transversal tensile test (perpendicular to the fiber direction); ASTM D3039
	10.0 GPa	1450 ksi	In Fiber direction +/- 45° to tensile axis; ASTM D3039 and D3518
			Longitudinal tensile test (fiber

Mechanical Properties	140 GPa Metric	20300 ksi English	Comments
			direction). These values are normalized to 60% of fiber volume fraction; ASTM D3039
Transverse Strength	53.5 MPa	7760 psi	ASTM D3039
Compressive Strength	553 MPa	80200 psi	ASTM D3410
Shear Strength	66.0 MPa	9570 psi	ILSS - Interlaminar; ASTM D2344

Thermal Properties	Metric	English	Comments
CTE, linear	29.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	16.5 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
Flammability, UL94	V-0	V-0	UL 94

Electrical Properties	Metric	English	Comments
Volume Resistivity	4000 ohm-cm	4000 ohm-cm	This value is measured for the pure EPOCYL NC R2HM-01, without any fiber reinforcements.

Descriptive Properties	Value	Comments
Aspect	Solid, black	
Epoxy Value	3.45 - 3.5 eq/kg	

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