

Industrial Laminates/Norplex NP511 Glass Fabric

Category : Polymer , Thermoset

Material Notes:

Description: Woven glass fabric with high temperature epoxy resin. Excellent mechanical strength and electrical properties at elevated temperatures. Continuous operating temperature is 165°C. Material meets or exceeds NEMA G-11 standard and has been produced using the same materials as listed in the NIST G11CR specification for materials used in cryogenic applications, but not to the exact same quantities of ingredients as specified in the process specification. Thickness Tested: 0.062", 0.125" & 0.500"

Order this product through the following link:

http://www.lookpolymers.com/polymer_Industrial-LaminatesNorplex-NP511-Glass-Fabric.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.80 - 1.90 g/cc	1.80 - 1.90 g/cc	ASTM D792
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Moisture Absorption at Equilibrium	0.20 %	0.20 %	ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	100 - 120	100 - 120	ASTM D785
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Tensile Strength, Yield	255 MPa	37000 psi	CW; ASTM D638
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	296 MPa	43000 psi	LW; ASTM D638
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Modulus of Elasticity	18.6 GPa	2700 ksi	CW; ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	20.7 GPa	3000 ksi	LW; ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Flexural Strength	483 MPa	70000 psi	CW; ASTM D790
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	552 MPa	80000 psi	LW; ASTM D790
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Compressive Strength	434 MPa	63000 psi	ASTM D695
	@Thickness 12.7 mm	@Thickness 0.500 in	

Mechanical Properties	152 MPa Metric	22000 psi English	Comments
	@Thickness 15.7 mm	@Thickness 0.620 in	
Izod Impact, Unnotched	4.81 J/cm	9.00 ft-lb/in	CW, Cond E-48/50; ASTM D256
	@Thickness 12.7 mm	@Thickness 0.500 in	
	6.41 J/cm	12.0 ft-lb/in	LW, Cond E-48/50; ASTM D256
	@Thickness 12.7 mm	@Thickness 0.500 in	

Thermal Properties	Metric	English	Comments
CTE, linear	13.0 $\mu\text{m/m-}^{\circ}\text{C}$	7.22 $\mu\text{in/in-}^{\circ}\text{F}$	x-axis; IPC-TM 650-2.4.24
	@Thickness 1.57 mm, Temperature 20.0 $^{\circ}\text{C}$	@Thickness 0.0620 in, Temperature 68.0 $^{\circ}\text{F}$	
CTE, linear, Transverse to Flow	15.0 $\mu\text{m/m-}^{\circ}\text{C}$	8.33 $\mu\text{in/in-}^{\circ}\text{F}$	x-axis; IPC-TM 650-2.4.24
	@Thickness 1.57 mm, Temperature 20.0 $^{\circ}\text{C}$	@Thickness 0.0620 in, Temperature 68.0 $^{\circ}\text{F}$	
Maximum Service Temperature, Air	185 $^{\circ}\text{C}$	365 $^{\circ}\text{F}$	
Glass Transition Temp, Tg	165 $^{\circ}\text{C}$	329 $^{\circ}\text{F}$	Tg
Flammability, UL94	HB	HB	
	@Thickness 1.57 mm	@Thickness 0.0620 in	

Electrical Properties	Metric	English	Comments
Dielectric Constant	4.38	4.38	Permittivity, Cond D-24/23; ASTM D150
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Dielectric Strength	31.5 kV/mm	800 kV/in	Cond D-48/50; ASTM D229 S.T.
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	35.4 kV/mm	900 kV/in	Cond A; ASTM D229 S.T.
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Dielectric Breakdown	55000 V	55000 V	Cond D-48/50; ASTM D229 S/S
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	60000 V	60000 V	Cond A; ASTM D229 S/S
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Dissipation Factor	0.020	0.020	Cond D-24/23; ASTM D150
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	120 sec	120 sec	

Arc Resistance Electrical Properties		Metric @ Thickness 3.17 mm	English @ Thickness 0.125 in	ASTM D495 Comments
Comparative Tracking Index		150 V @Thickness 3.17 mm	150 V @Thickness 0.125 in	ASTM D3638

Descriptive Properties	Value	Comments
Bond Strength	2200 lb	0.5", ASTM D229
Color	Natural	

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