

Industrial Laminates/Norplex NP511ES Glass Epoxy Laminate

Category : Polymer , Thermoset

Material Notes:

Description: NP511ES is a woven glass fabric with high temperature, static dissipative epoxy resin. It has excellent mechanical strength and electrical properties at elevated temperatures with a continuous operating temperature of 165Å°C.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Industrial-LaminatesNorplex-NP511ES-Glass-Epoxy-Laminate.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.85 - 1.95 g/cc	1.85 - 1.95 g/cc	ASTM D792
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Moisture Absorption at Equilibrium	0.22 %	0.22 %	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	331 MPa	48000 psi	CW; ASTM D638
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	415 MPa	60200 psi	LW; ASTM D638
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Modulus of Elasticity	29.7 GPa	4310 ksi	CW; ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	33.0 GPa	4780 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	
	572 MPa	83000 psi	LW; ASTM D790
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Compressive Strength	586 MPa	85000 psi	ASTM D695
	@Thickness 12.7 mm	@Thickness 0.500 in	
Shear Strength	179 MPa	26000 psi	ASTM D732
	@Thickness 15.7 mm	@Thickness 0.620 in	

Mechanical Properties	Metric/cm	English/lb/in	Comments
Izod Impact, Unnotched	@Thickness 12.7 mm	@Thickness 0.500 in	CW, Cond E-48/50; ASTM D256
	6.94 J/cm	13.0 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	9.70 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	5.39 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	x-axis; IPC-TM 650-2.4.24
	@Thickness 1.57 mm, Temperature 20.0 $\text{Å}^\circ\text{C}$	@Thickness 0.0620 in, Temperature 68.0 $\text{Å}^\circ\text{F}$	
CTE, linear, Transverse to Flow	17.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	9.83 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	x-axis; IPC-TM 650-2.4.24
	@Thickness 1.57 mm, Temperature 20.0 $\text{Å}^\circ\text{C}$	@Thickness 0.0620 in, Temperature 68.0 $\text{Å}^\circ\text{F}$	
Maximum Service Temperature, Air	180 $\text{Å}^\circ\text{C}$	356 $\text{Å}^\circ\text{F}$	
Glass Transition Temp, Tg	180 $\text{Å}^\circ\text{C}$	356 $\text{Å}^\circ\text{F}$	Tg
Flammability, UL94	HB	HB	
	@Thickness 1.57 mm	@Thickness 0.0620 in	

Descriptive Properties	Value	Comments
Bond Strength	1800 lb	0.5", ASTM D229
Color	Black	

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