

## Industrial Laminates/Norplex NP320 Cotton Fabric

Category : Polymer , Thermoset , Phenolic

### Material Notes:

Description: Fine weave (less than 4 ounce/square yard) cotton fabric commonly called linen, combined with phenolic resin to provide better machining than NP310. For smaller and more intricate shapes than NP310. Thickness Tested: 0.062", 0.125", and 0.500"

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Industrial-LaminatesNorplex-NP320-Cotton-Fabric.php](http://www.lookpolymers.com/polymer_Industrial-LaminatesNorplex-NP320-Cotton-Fabric.php)

Physical Properties	Metric	English	Comments
Specific Gravity	1.30 - 1.40 g/cc	1.30 - 1.40 g/cc	ASTM D792
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Moisture Absorption at Equilibrium	2.3 %	2.3 %	ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	90 - 110	90 - 110	ASTM D785
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Tensile Strength, Yield	68.9 MPa	10000 psi	CW; ASTM D638
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	96.5 MPa	14000 psi	LW; ASTM D638
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Modulus of Elasticity	8.96 GPa	1300 ksi	CW; ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	11.7 GPa	1700 ksi	LW; ASTM D229
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Flexural Strength	128 MPa	18500 psi	CW; ASTM D790
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	169 MPa	24500 psi	LW; ASTM D790
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Compressive Strength	262 MPa	38000 psi	ASTM D695
	@Thickness 12.7 mm	@Thickness 0.500 in	
Shear Strength	93.1 MPa	13500 psi	ASTM D732
	@Thickness 15.7 mm	@Thickness 0.620 in	

Mechanical Properties	Metric $J/cm$	English $lb/in$	Comments
Izod Impact, Unnotched	@Thickness 12.7 mm	@Thickness 0.500 in	CW, Cond E-48/50; ASTM D256
	0.908 J/cm @Thickness 12.7 mm	1.70 ft-lb/in @Thickness 0.500 in	LW, Cond E-48/50; ASTM D256

Thermal Properties	Metric	English	Comments
CTE, linear	18.0 $\mu m/m-^{\circ}C$	10.0 $\mu in/in-^{\circ}F$	x-axis; IPC-TM 650-2.4.24
	@Thickness 1.57 mm, Temperature 20.0 $^{\circ}C$	@Thickness 0.0620 in, Temperature 68.0 $^{\circ}F$	
CTE, linear, Transverse to Flow	19.0 $\mu m/m-^{\circ}C$	10.6 $\mu in/in-^{\circ}F$	x-axis; IPC-TM 650-2.4.24
	@Thickness 1.57 mm, Temperature 20.0 $^{\circ}C$	@Thickness 0.0620 in, Temperature 68.0 $^{\circ}F$	
Maximum Service Temperature, Air	125 $^{\circ}C$	257 $^{\circ}F$	
Flammability, UL94	HB	HB	
	@Thickness 1.57 mm	@Thickness 0.0620 in	

Electrical Properties	Metric	English	Comments
Dielectric Strength	17.7 kV/mm	450 kV/in	Cond D-48/50; ASTM D229 S.T.
	@Thickness 1.57 mm	@Thickness 0.0620 in	
	22.6 kV/mm	575 kV/in	Cond A; ASTM D229 S.T.
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Dielectric Breakdown	30000 V	30000 V	Cond A; ASTM D229 S/S
	@Thickness 1.57 mm	@Thickness 0.0620 in	
Arc Resistance	15 sec	15 sec	ASTM D495
	@Thickness 3.17 mm	@Thickness 0.125 in	
Comparative Tracking Index	170 V	170 V	ASTM D3638
	@Thickness 3.17 mm	@Thickness 0.125 in	

Descriptive Properties	Value	Comments
Bond Strength	2000 lb	0.5", ASTM D229
Color	Natural, Black	

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