

Industrial Laminates/Norplex NP310E Cotton Fabric

Category : Polymer , Thermoset , Phenolic

Material Notes:

Description: Manufactured with a domestic cotton fabric and phenolic resin. Similar to NP310 with improved moisture resistance and electrical properties. Mechanical properties equivalent to NP310. MIL-I-24768/14. Thickness Tested: 0.062", 0.125", and 0.500".

Order this product through the following link:

http://www.lookpolymers.com/polymer_Industrial-LaminatesNorplex-NP310E-Cotton-Fabric.php

| Physical Properties | Metric | English | Comments |
|------------------------------------|--------------------|----------------------|-----------|
| Specific Gravity | 1.35 - 1.40 g/cc | 1.35 - 1.40 g/cc | ASTM D792 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| Moisture Absorption at Equilibrium | 2.0 % | 2.0 % | 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 | 62.1 MPa | 9000 psi | CW; ASTM D638 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| | 75.8 MPa | 11000 psi | LW; ASTM D638 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| Modulus of Elasticity | 10.3 GPa | 1500 ksi | CW; ASTM D229 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| | 11.0 GPa | 1600 ksi | LW; ASTM D229 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| Flexural Strength | 103 MPa | 15000 psi | CW; ASTM D790 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| | 121 MPa | 17500 psi | LW; ASTM D790 |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| Compressive Strength | 234 MPa | 34000 psi | ASTM D695 |
| | @Thickness 12.7 mm | @Thickness 0.500 in | |
| Shear Strength | 96.5 MPa | 14000 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 | 20.0 $\mu m/m-^{\circ}C$ | 11.1 $\mu in/in-^{\circ}F$ | 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 | 22.0 $\mu m/m-^{\circ}C$ | 12.2 $\mu in/in-^{\circ}F$ | 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 | 11.8 kV/mm | 300 kV/in | Cond D-48/50; ASTM D229 S.T. |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| | 21.7 kV/mm | 550 kV/in | Cond A; ASTM D229 S.T. |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| Dielectric Breakdown | 3000 V | 3000 V | Cond D-48/50; ASTM D229 S/S |
| | @Thickness 1.57 mm | @Thickness 0.0620 in | |
| | 40000 V | 40000 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 | |

| Descriptive Properties | Value | Comments |
|------------------------|----------------|-----------------|
| Bond Strength | 1700 lb | 0.5", ASTM D229 |
| Color | Natural, Black | |

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