FRANKLIN

MANUFACTURERS & FABRICATORS OF
ELECTRICAL INSULATION MATERIALS

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# MATERIAL DATA SHEET

**Material:** Lamitex® Grade LE Cotton/Phenolic Laminate Sheet

**Description:** Lamitex® LE cotton/phenolic sheet is well suited for use in electrical applications requiring good moisture resistance, and has good dielectric and medium dielectric loss properties. LE has lower mechanical strength than materials with glass substrates, but has superior impact resistance when compared to paper based laminates and is a good candidate for applications requiring high mechanical load and wear resistance. Can be lubricated with water, oil or grease and is resistant to weather and salt water. LE can be machined to relatively close tolerances and smooth finishes.

**Standards:**

| | |
|---|---|
| NEMA LI-1 Grade | LE |
| MIL-I-24768 | / 13 Type FBE |
| EN 60893 | PF CC 305 |

**Availability:** LE is also manufactured as round tubes (convolute wound), rods, molded channel, angle, square and rectangular tubes and fabricated custom parts.

| Physical Properties | Test Condition | | ASTM | Typical Values |
|---|---|---|---|---|
| Thickness | | | | .125" |
| Specific Gravity | | | D792 | 1.33 |
| Rockwell Hardness (M Scale) | | | D785 | 105 |
| Moisture Absorption (maximum) | | | D229 | 1.30% |
| Flexural Strength | Condition A: | Lengthwise | D229 | 16,000 psi |
| | | Crosswise | | 14,000 psi |
| Tensile Strength | Condition A: | Lengthwise | | 11,000 psi |
| | | Crosswise | | 9,000 psi |
| Compressive Strength | Condition A: | Flatwise | D695 | 37,000 psi |
| | | Edgewise | | 24,500 psi |
| Izod Impact Strength (.500" thick) | E48/50: | Lengthwise | D229 | 1.25 ft-lb/in.(notch) |
| | | Crosswise | | 1.00 ft-lb/in.(notch) |
| Bond Strength (.500" thick) | Condition A | | D229 | 1,600 lbs |

## Thermal & Electrical Properties

| | | | |
|---|---|---|---|
| Temperature Index Electrical / Mechanical | | | 115°C / 125°C |
| Coefficient of Thermal Expansion | | | 200 cm/cm/°C x $10^{-6}$ |
| U.L.® 94 Flammability Rating | | | 94-HB |
| Dielectric Breakdown (step x step) | Condition A / D 48/50 | D229 | 40.0 kV / 3.0 kV |
| Maximum Permittivity @ 1 MHz | Condition A / D 24/23 | D229 | 5.80 / 6.00 |
| Maximum Dissipation @ 1 MHz | Condition A / D 24/23 | D229 | .055 / .070 |
| Electrical Strength (short time) | Condition A | D229 | 360 Vpm |
| Electrical Strength (step x step) | Condition A | D229 | 220 Vpm |

*All information and suggestions pertaining to the properties and uses of the materials herein are based upon tests and data believed to be accurate: however, the final determination regarding the suitability of any described material herein for the use is the sole responsibility of the user. No warranty is expressed or implied, including, without limitation warrant of merchantability or fitness for a particular purpose. Under no circumstances shall Franklin Fibre - Lamitex Corp. be liable of incidental or consequential loss or damage.*

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