



MANUFACTURERS OF
ELECTRICAL INSULATION MATERIALS

INSULATING COMPONENTS FOR
POWER SYSTEMS EQUIPMENT

The Gund Company, Inc
St. Louis, Missouri – USA

TEL - 314.423.5200
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MATERIAL DATA SHEET

Item: Nomex® LT

Description: Nomex® LT is a new proprietary non-woven electrical insulation developed by DuPont for use in motors, generators, and transformers. The product offers superior high tear strength and is specifically designed to meet the performance requirements for system applications of 180 °C (Class H) or lower. Available product ranges from 2.4 to 10 mil in thickness and appearance is yellow in color.

Applications - Nomex® LT is designed for applications including conductor wrap, phase and layer insulation for coils. This product provides design engineers many advantages including mechanical strength, elongation, and enhanced resin saturability. In addition, Nomex LT is manufactured with a smooth slip plane for ease of insertion.

Mechanical Properties - The typical mechanical property values for Nomex® LT are shown in Table 1. The continuous filament nature of the substrate results in superior initial tear, tear propagation, and elongation performance benefiting equipment designers and fabricators

Electrical Properties - The typical electrical property values for Nomex® LT are shown in Table 2. The AC rapid rise dielectric strength data represents voltage stress levels that the structure withstood for 10 to 20 seconds at a frequency of 60 Hz. These values differ from long-term strength potential. The dielectric strength data are typical values and not recommended for design purposes. DuPont recommends that continuous stresses in electrical equipment not exceed 1.2 kV/mm (30 V/mil) to minimize the risk of partial discharges (corona).

Impregnation - The excellent impregnability of Nomex® LT by resins or varnishes can result in significantly enhanced electrical properties as shown in Table 3. Processing characteristics of this structure are similar to other insulation materials used in the industry.

Thermal Properties - Nomex® LT is designed specifically for 180 °C (Class H) and 155 °C (Class F) applications, where flame resistance is not required. For applications where conditions may exceed 180 °C, consider Nomex® Type 410 and 418 products, rated 220 °C (UL).



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**Table I:
Typical Mechanical Properties of Nomex® LT Type 180**

Property	Test Method	Nominal Thickness	Typical Values, Mils (Inches)			
			2.4(0.002)	5 (0.13)	7 (0.18)	10 (0.25)
Thickness	ASTM D374*	mil	2.4	5.4	7.1	11.0
Basis Weight	ASTM D646	oz/yd ²	1.6	3.1	4.5	6.6
Density		g/cc	0.9	0.8	.9	0.80
MD Tensile Strength	ASTM D828	lb/in	25	45	60	80
XD Tensile Strength			10	25	35	45
MD Elongation	ASTM D828	%	25	30	30	25
XD Elongation			25	25	25	25
MD Initial Tear Strength	ASTM D1004	lb	3	6	8	12
XD Initial Tear Strength			4	7	11	17
MD Elmendorf Strength	TAPPI 414	gr	230	560	870	1390
XD Elmendorf Strength			510	1110	1480	2710
UL Thermal Electrical Insulation System Component, Rating	UL 1446	°C	180	180	180	180

**Table II:
Typical Electrical Properties**

Property	Nominal Thickness (mil)	2.4	5	7	10	Test Method
AC Rapid Rise Breakdown	V/mil	160	120	120	110	ASTM D149*
Surface Resistivity	Ohms/sq	10 ¹⁶	10 ¹⁶	10 ¹⁶	10 ¹⁶	ASTM D257
Volume Resistivity	Ohms-cm	10 ¹⁷	10 ¹⁷	10 ¹⁷	10 ¹⁷	
Dielectric Constant at 60 Hz	23 °C	1.56	1.87	1.85	2.06	ASTM D1502
	180 °C	1.87	1.99	2.05	2.36	
Dissipation Factor at 60 Hz	23 °C	.004	0.006	0.006	0.008	ASTM D150
	180 °C	.044	0.066	0.082	0.070	

**Table III:
Impregnated AC Dielectric Properties**

Product		Dry	Resin	Resin	Test Method
Nomex® LT 2.4 mil	V/mil	180	1520	990	ASTM D149*
Nomex® LT 5 mil	V/mil	130	1320	1170	ASTM D149*

All of the information, suggestions, and recommendations pertaining to the properties and uses of the products herein are based upon tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the use contemplated, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty, expressed or implied, including, without limitation warranty of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.

