DuPont™
NOMEX®

DUPONT™ NOMEX® CREPE PAPER 7 MIL TYPE 411

PRELIMINARY TECHNICAL DATA SHEET

NOMEX® is a synthetic aromatic polyamide and is generally known as an aramid. The molecular structure of the material is particularly stable and the performance characteristics of NOMEX® paper are a consequence of this. These NOMEX® brand papers have a range of properties, including:

- High Temperature Resistance – rated by UL for continuous use at 220°C; has usable properties in ranges from –196°C to 300°C.
- Chemical Resistance – broad chemical compatibility with most industrially used oils, resins, adhesives and refrigerants.
- Additional Attributes – mechanical toughness, non-toxic, flame resistant, insensitive to moisture, radiation resistant, inherently high dielectric strength.

Type 411 is the uncalendered precursor of NOMEX® Type 410. It is used where high bulk and conformability are of prime importance along with increased impregnability and saturability. Creping allows the paper to have significantly better elongation, which allows the use of these papers into a broader range of electrical insulation applications. Specific examples include convolutely wound flexible tubes and tapes for wrapping leads in liquid filled transformers. These creped papers are designed to be stretched to 100% without breaking. As the tapes are elongated, the thickness will decrease consistent with this stretching.

Testing of our creped papers in mineral oil at room temperature (23°C) has been conducted. Table 2 shows that the 60 Hz dielectric strength is very dependent on the dielectric strength of the media (air or oil), and that the creping process has not substantially altered the dielectric properties.

PLEASE NOTE:
The properties in this data sheet are preliminary average values and should not be used as specification limits. This data only represents a small amount of material and will likely change with more data collection. Unless otherwise noted, all properties were measured in air under "standard" conditions (in equilibrium at 23°C, 50% relative humidity). Note that, like other products of paper-making technology, NOMEX® papers and pressboards have somewhat different properties in the machine direction (MD) compared to the cross direction (XD). In some applications it may be necessary to orient the paper or pressboard in the optimum direction to obtain its maximum potential performance.

Table 1 – **7 MIL TYPE 411 MECHANICAL DATA**

Test	Not Creped	Creped
Typical Thickness (mm)	0.20	0.648
Density (g/cc)	0.31	0.23
MD Tensile Strength (N/cm)	27.0	22.7
MD Elongation (%)	3.75	100

Table 2 – **7 MIL TYPE 411 ELECTRICAL DATA**

Test	Not Creped	Creped
Thickness (mils)	8.34	25.5
Thickness (mm)	0.20	0.648
Dielectric Strength (2" flat electrode)		
kV (air)	2.0	2.15
kV (oil)	12.7	14.2

Other types of NOMEX® brand paper are also available in creped form. Examples include both 2 and 3 mil Type 410. Contact your local DuPont representative for more information about these materials and how to order.

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Product safety information is available upon request.

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