

## Flexible Insulation

### Nomex 411

#### GENERAL

Type 411 is the uncalendared precursor to Type 410 and is available in five thicknesses 0.13mm to .58mm with a specific gravity of .3.

It has lower electrical and mechanical properties than 410

#### CHEMICAL STABILITY

The compatibility of Nomex aramid paper with virtually all classes of electrical varnishes and adhesives (polyimide, silicone, epoxy, polyester, acrylic, phenolic, and synthetic rubbers, etc.) is demonstrated by the many UL recognised systems. Nomex papers are also fully compatible with transformer fluids (mineral and silicone oils and other synthetics) and with lubricating oils and refrigerants used in hermetic systems.

#### PROPERTIES

| Nominal Thickness          | mm    | .13  | .18  | .25  | .38  | .58  |
|----------------------------|-------|------|------|------|------|------|
| <b>Dielectric Strength</b> |       |      |      |      |      |      |
| AC Rapid Rise              | V/mil | 230  | 240  | 240  | 240  | 210  |
| (ASTM D-149)               | kV/mm | 9    | 9    | 9    | 9    | 8    |
| Full Wave Impulse          | V/mil | 450  | 450  | 450  | 400  | 400  |
| (ASTM D-3426)              | kV/mm | 18   | 18   | 18   | 16   | 16   |
| Dielectric Constant        | 60Hz  | 1.2  | 1.2  | 1.2  | 1.3  | 1.3  |
| (ASTM D-150)               | 1 kHz | 1.3  | 1.3  | 1.3  | 1.4  | 1.4  |
| Dissipation Factor         | 60Hz  | .003 | .003 | .003 | .003 | .003 |
| (ASTM D-150)               | 1 kHz | .005 | .005 | .005 | .005 | .005 |

#### THERMAL PROPERTIES

The effects of long-time exposure of Nomex to high temperature are the basis for the recognition of Nomex paper as insulation suitable for use in 220°C by Underwriters laboratories, the U.S. Navy, and others, and are confirmed by more than 25 years' commercial experience.

#### APPLICATIONS

It is used in applications such as motor phase insulation and transformer coil end filler, where high bulk and conformability are of prime importance. Type 411 offers increased impregnability and saturability when compared to type 410.