

SPUNLACED FABRICS

Type E88C

NOMEX® brand spunlaced fabrics Type E88C are designed for uses that require a high degree of saturability and yet must withstand severe thermal or chemical requirements. Such uses include motor phase insulation, saturable facing plies on laminates as well as saturable conductor wrap. These nonwoven sheets have an open and porous structure that allows easy saturation by resins and varnishes. NOMEX® Type E88C spunlaced fabrics are available in two calendered forms, moderate density (Styles 309A, 320A and 326A) and higher density (Styles 309B and 320B). The higher density forms offer a higher modulus for those applications requiring increased resistance to deformation.

Product Description

NOMEX® spunlaced fabrics are manufactured by DuPont using SONTARA® fabric made with spunlaced technology. This spunlaced process yields a fabric that is durable and soft, as well as conformable and lightweight, which is independent of fiber used. SONTARA® spunlaced fabrics are available commercially using NOMEX® and KEVLAR® brand fiber, as well as polyester and other fibers. This data sheet concerns only the calendered Type E88C products, which are 100% NOMEX®.

The sheet integrity of spunlaced fabrics comes from the hydraulic interlacing of fibers rather than from the use of binders or thermal or chemical bonding. Spunlaced fabrics offer improved saturability of varnishes and resins versus NOMEX® Type 410 paper due to their highly porous structure. The exact amount of improvement depends on the specific varnish, application technique and product thickness. Standard width is 1 meter.

Electrical Properties

Typical electrical property values for Type E88C spunlaced fabrics are dependent on the varnish or resin used to impregnate them. Due to the open and porous structure of these products, their unimpregnated dielectric strength (ASTM D-149) is approximately 150 volts/mil. The effect of moisture on the electrical properties of these fabrics will again be dependent on the effect on the resin or varnish itself.

Mechanical Properties

The typical mechanical property values are shown in Table 1.

Chemical Stability

NOMEX® brand papers are compatible with virtually all classes of electrical varnishes and adhesives (polyimides, silicones, epoxies, polyesters, acrylics, phenolics, synthetic rubbers, etc.) as well as other components of electrical equipment. Since NOMEX® spunlaced fabrics are identical chemically to NOMEX® papers, they too should be fully compatible with these compounds as well as transformer fluids (mineral and silicone oils and other synthetics) and with lubricating oils and refrigerants used in hermetic systems.

TECHNICAL DATA SHEET

Please Note:

The properties in this data sheet are typical or average values and should not be used as specification limits. Unless otherwise noted, all properties were measured in air under "standard" conditions (in equilibrium at 23° C, 50% relative humidity). Like other products of papermaking technology, papers of NOMEX® have somewhat different properties in the papermaking machine direction (MD) compared to the cross direction (XD). In some applications it may be necessary to orient the paper in the optimum direction to obtain its maximum potential performance.

| Table I - Typical Mechanical Properties | | | | | | | |
|---|-----------------------|------|------|------|------|------|-----------|
| Style | | 309B | 309A | 320B | 320A | 326A | |
| Nominal thickness | (mil) | 2 | 3 | 4 | 5 | 6 | Test |
| | (mm) | 0.05 | 0.08 | 0.10 | 0.13 | 0.15 | Method |
| Typical thickness | (mil) | 2.0 | 2.6 | 3.9 | 4.5 | 5.7 | ASTM D374 |
| | (mm) | 0.05 | 0.07 | 0.10 | 0.11 | 0.14 | |
| Basis Weight | (g/m ²) | 32.2 | 32.2 | 67.8 | 67.8 | 88.2 | ASTM D646 |
| Density | (g/cc) | 0.64 | 0.46 | 0.71 | 0.60 | 0.62 | |
| MD Tensile strength | (N/cm) | 14.0 | 19.3 | 47.3 | 52.5 | 66.5 | ASTM D828 |
| MD Elongation | (%) | 26 | 29 | 29 | 30 | 30 | ASTM D828 |
| MD Modulus | (kN/cm ²) | 76 | 8 | 97 | 28 | 41 | ASTM D828 |
| Density calculated using thickness and basis weight MD = machine direction of paper | | | | | | | |

DuPont™ **NOMEX®**

USA

DuPont
Advanced Fibers Systems
Customer Inquiry Center
5401 Jefferson Davis Highway
Richmond, VA 23234
Tel: (800) 453-8527
(804) 383-4400
Fax: (800) 787-7086
Fax: (804) 383-4132
e-mail: afscdt@usa.dupont.com

CANADA

DuPont Canada, Inc.
Advanced Fibers Systems
P. O. Box 2200
Streetsville Postal Station
Mississauga, Ontario, L5M 2H3
Canada
Tel: (800) 387-2122
(905) 821-5193
Fax: (905) 821-5177
e-mail: products@can.dupont.com

EUROPE

Du Pont de Nemours International S. A.
P. O. Box 50
CH-1218 le Grand Saconnex
Geneva, Switzerland
Tel: +41-22-717-5111
Fax: +41-22-717-6218
e-mail: info.nomex@che.dupont.com

SOUTH AMERICA

DuPont do Brasil S. A.
Alameda Itapecuru, 506
BR-06454-080 Alphaville
Barueri, Sao Paulo, Brasil
Tel: +0800-17-17-15
+55 11 4166 8449
Fax: +55 11 7266 8904
e-mail: produtos.brasil@bra.dupont.com

JAPAN

DuPont Teijin Advanced Papers (Japan) Limited
ARCO Tower,
8-1, Shimomeguro I-chome
Meguro-ku, Tokyo 153-0064
Japan
Tel: +81-3-5434-6609
Fax: +81-3-5434-6605
e-mail: chihiro.kondo@jpn.dupont.com

ASIA PACIFIC

DuPont Teijin Advanced Papers (Asia) Limited
1122 New World Office Building, East Wing
24 Salisbury Road
Tsimshatsui, Kowloon
Hong Kong
Tel: +852-2734-5363
Fax: +852-2734-5486
e-mail: nomexpaper@hkg.dupont.com

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