

# DUPONT™ NOMEX® CREPE PAPER 3 MIL TYPE 410

## 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.

NOMEX® Type 410 is broadly used as a wire wrap material in many transformer and motor applications. Creping allows the paper to have significantly better elongation, which allows the use of these papers in applications where movement of the wrapped wire requires this increased elongation. Specific examples include wrapping leads in a variety of transformer and motor applications. 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.

Table 1 – 3 MIL TYPE 410 MECHANICAL DATA

| Test                       | Not Creped | Creped |
|----------------------------|------------|--------|
| Typical Thickness (mm)     | 0.08       | 0.856  |
| Density (g/cc)             | 0.80       | 0.15   |
| MD Tensile Strength (N/cm) | 65.0       | 50.0   |
| MD Elongation (%)          | 11.0       | 110    |

Table 2 – 3 MIL TYPE 410 ELECTRICAL DATA

| Test                                    | Not Creped | Creped |
|---|------------|--------|
| Thickness (mils)                        | 3.11       | 37.7   |
| Thickness (mm)                          | 0.08       | 0.856  |
| Dielectric Strength (2" flat electrode) |            |        |
| kV (air)                                | 1.65       | 2.25   |
| kV (oil)                                | 6.70       | 11.0   |

Other types of NOMEX® brand paper are also available in creped form. Examples include both 2 mil Type 410 and 7 mil Type 411. Contact your local DuPont representative for more information about these materials and how to order.

**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.

#### 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  
(804) 383-4132  
E-mail: afscdt@usa.dupont.com

#### SOUTH AMERICA

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

#### 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

#### EUROPE

Du Pont de Nemours International S.A.  
Advanced Fibers Systems  
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

#### 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

[www.dupont.com/nomex](http://www.dupont.com/nomex)

**Product safety information is available upon request.**

This information corresponds to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own experimentations. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge and experience becomes available. Since we cannot anticipate all variations in actual end-use conditions, **DUPONT MAKES NO WARRANTIES AND ASSUMES NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.** Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent right.

© Copyright 2003 E.I. du Pont de Nemours and Company. All rights reserved. The DuPont oval logo, The miracles of science™, DuPont™, and NOMEX® are trademarks or registered trademarks of DuPont or its affiliates.

H-93499 Rev. 08/03



The miracles of science™