

2 mil 410

T: (+44) 01903 235784  
F: +44 (0)1903 230855  
E: sales@candwseals.co.uk  
W: www.candwseals.co.uk

CUSTOMER PRODUCT SPECIFICATION  
E. I. du Pont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_ DESCRIPTION/TYPE 2 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17750

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	1.06	1.20	1.33	0656	ASTM	D646
Thickness	Mils	1.90	2.25	2.60	0656	ASTM	*
Density	Grams/CC	0.61	0.72	0.83	0656	ASTM	D646
Dielectric Strength	Volts/Mil	330			0635	ASTM	D149
Tensile MD	Lbs/in	18.5			0658	ASTM	D828
Tensile XD	Lbs/in	7.2			0658	ASTM	D828
Elongation MD	%	5.7			0658	ASTM	D828
Elongation XD	%	4.2			0658	ASTM	D828
Elmendorf MD	Gm	45			0647	TAPPI	414
Elmendorf XD	Gm	105			0647	TAPPI	414
Initial Tear MD	Lbs	1.7			0761	ASTM	D1004
Initial Tear XD,	Lbs	0.6			0761	ASTM	D1004

INTERPRETATION

The property values listed in this Customer Product Specification were determined by DuPont test methods through statistical sampling of the product during its manufacture. Other sampling plans and test methods might give different values. (\* Dupont test method for thickness [0656] follows ASTM D-374 format with the exception of using 12.5 psi foot pressure.

Typically, DuPont test protocol requires averaging at least ten measurements representative of the package to produce the average value.

3 mil 410

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CUSTOMER PRODUCT SPECIFICATION  
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FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_ DESCRIPTION/TYPE 3 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17755

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	1.69	1.90	2.11	0656	ASTM	D646
Thickness	Mils	2.70	3.15	3.60	0656	ASTM	*
Density	Grams/CC	0.68	0.80	0.92	0656	ASTM	D646
Dielectric Strength	Volts/Mil	460			0635	ASTM	D149
Tensile MD	Lbs/in	32			0658	ASTM	D828
Tensile XD	Lbs/in	14.8			0658	ASTM	D828
Elongation MD	%	6.9			0658	ASTM	D828
Elongation XD	%	5.0			0658	ASTM	D828
Elmendorf MD	Gm	60			0647	TAPPI	414
Elmendorf XD	Gm	175			0647	TAPPI	414
Initial Tear MD	Lbs	1.8			0761	ASTM	D1004
Initial Tear XD,	Lbs	1.1			0761	ASTM	D1004

INTERPRETATION

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5 mil 410

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FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_  
 DESCRIPTION/TYPE 5 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17760

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	3.19	3.40	3.61	0656	ASTM	D646
Thickness	Mils	4.65	5.25	5.85	0656	ASTM	*
Density	Grams/CC	0.76	0.87	0.98	0656	ASTM	D646
Dielectric Strength	Volts/Mil	538			0635	ASTM	D149
Tensile MD	Lbs/in	66.0			0658	ASTM	D828
Tensile XD	Lbs/in	29.7			0658	ASTM	D828
Elongation MD	%	10.7			0658	ASTM	D828
Elongation XD	%	7.0			0658	ASTM	D828
Elmendorf MD	Gm	150			0647	TAPPI	414
Elmendorf XD	Gm	305			0647	TAPPI	414
Initial Tear MD	Lbs	4.9			0761	ASTM	D1004
Initial Tear XD,	Lbs	2.4			0761	ASTM	D1004

INTERPRETATION

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7 mil 410

T: (+44) 01903 235784  
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CUSTOMER PRODUCT SPECIFICATION  
E. I. du Pont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_  
 DESCRIPTION/TYPE 7 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17765

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	4.91	5.15	5.39	0656	ASTM	D646
Thickness	Mils	6.71	7.25	7.78	0656	ASTM	*
Density	Grams/CC	0.85	0.95	1.01	0656	ASTM	D646
Dielectric Strength	Volts/Mil	714			0635	ASTM	D149
Tensile MD	Lbs/in	105			0658	ASTM	D828
Tensile XD	Lbs/in	55.0			0658	ASTM	D828
Elongation MD	%	13.7			0658	ASTM	D828
Elongation XD	%	9.7			0658	ASTM	D828
Elmendorf MD	Gm	235			0647	TAPPI	414
Elmendorf XD	Gm	470			0647	TAPPI	414
Initial Tear MD	Lbs	8.2			0761	ASTM	D1004
Initial Tear XD,	Lbs	3.6			0761	ASTM	D1004

INTERPRETATION

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10 mil 410

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CUSTOMER PRODUCT SPECIFICATION  
E. I. du Pont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_ DESCRIPTION/TYPE 10 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17930

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	6.77	7.30	7.83	0656	ASTM	D646
Thickness	Mils	9.31	10.25	11.18	0656	ASTM	*
Density	Grams/CC	0.87	0.96	1.05	0656	ASTM	D646
Dielectric Strength	Volts/Mil	700			0635	ASTM	D149
Tensile MD	Lbs/in	140			0658	ASTM	D828
Tensile XD	Lbs/in	67.0			0658	ASTM	D828
Elongation MD	%	12.0			0658	ASTM	D828
Elongation XD	%	10.0			0658	ASTM	D828
Elmendorf MD	Gm	330			0647	TAPPI	414
Elmendorf XD	Gm	515			0647	TAPPI	414
Initial Tear MD	Lbs	12.7			0761	ASTM	D1004
Initial Tear XD,	Lbs	7.6			0761	ASTM	D1004

INTERPRETATION

The property values listed in this Customer Product Specification were determined by DuPont test methods through statistical sampling of the product during its manufacture. Other sampling plans and test methods might give different values. (\* Dupont test method for thickness [0656] follows ASTM D-374 format with the exception of using 12.5 psi foot pressure.

Typically, DuPont test protocol requires averaging at least ten measurements representative of the package to produce the average value.

12 mil 410

T: (+44) 01903 235784  
F: +44 (0)1903 230855  
E: sales@candwseals.co.uk  
W: www.candwseals.co.uk

CUSTOMER PRODUCT SPECIFICATION  
E. I. du Pont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_  
 DESCRIPTION/TYPE 12 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17847

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	8.50	9.10	9.70	0656	ASTM	D646
Thickness	Mils	11.20	12.25	13.30	0656	ASTM	D374*
Density	Grams/CC	0.90	0.99	1.08	0656	ASTM	D646
Dielectric Strength	Volts/Mil	720			0635	ASTM	D149
Tensile MD	Lbs/in	180			0658	ASTM	D828
Tensile XD	Lbs/in	95.0			0658	ASTM	D828
Elongation MD	%	15.0			0658	ASTM	D828
Elongation XD	%	11.0			0658	ASTM	D828
Elmendorf MD	Gm	460			0647	TAPPI	414
Elmendorf XD	Gm	915			0647	TAPPI	414
Initial Tear MD	Lbs	15.0			0761	ASTM	D1004
Initial Tear XD,	Lbs	7.4			0761	ASTM	D1004

INTERPRETATION

The property values listed in this Customer Product Specification were determined by DuPont test methods through statistical sampling of the product during its manufacture. Other sampling plans and test methods might give different values. (\* Dupont test method for thickness [0656] follows ASTM D-374 format with the exception of using 12.5 psi foot pressure.)

Typically, DuPont test protocol requires averaging at least ten measurements representative of the package to produce the average value.

15 mil 410

T: (+44) 01903 235784  
F: +44 (0)1903 230855  
E: sales@candwseals.co.uk  
W: www.candwseals.co.uk

CUSTOMER PRODUCT SPECIFICATION  
E. I. du Pont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_ DESCRIPTION/TYPE 15 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17965

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	10.93	11.60	12.27	0656	ASTM	D646
Thickness	Mils	13.70	15.30	16.90	0656	ASTM	*
Density	Grams/CC	0.93	1.01	1.09	0656	ASTM	D646
Dielectric Strength	Volts/Mil	695		0635	ASTM	D149	
Tensile MD	Lbs/in	230			0658	ASTM	D828
Tensile XD	Lbs/in	125			0658	ASTM	D828
Elongation MD	%	14.3			0658	ASTM	D828
Elongation XD	%	11.7			0658	ASTM	D828
Elmendorf MD	Gm	535			0647	TAPPI	414
Elmendorf XD	Gm	970/			0647	TAPPI	414
Initial Tear MD	Lbs	21.2			0761	ASTM	D1004
Initial Tear XD,	Lbs	11.6			0761	ASTM	D1004

INTERPRETATION

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Typically, DuPont test protocol requires averaging at least ten measurements representative of the package to produce the average value.

20 mil 410

T: (+44) 01903 235784  
F: +44 (0)1903 230855  
E: sales@candwseals.co.uk  
W: www.candwseals.co.uk

CUSTOMER PRODUCT SPECIFICATION  
E. I. DuPont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° C Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_ DESCRIPTION/TYPE 20 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 06/01/02 MERGE NO. 17970

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	15.30	16.10	16.90	0656	ASTM	D646
Thickness	Mils	18.65	20.40	22.15	0656	ASTM	D374
Density	Grams/CC	0.97	1.05	1.13	0656	ASTM	D646
Dielectric Strength	Volts/Mil	690			0635	ASTM	D149
Tensile MD	Lbs/in	290			0658	ASTM	D828
Tensile XD	Lbs/in	165			0658	ASTM	D828
Elongation MD	%	14.0			0658	ASTM	D828
Elongation XD	%	10.3			0658	ASTM	D828
Elmendorf MD	Gm	810			0647	TAPPI	414
Elmendorf XD	Gm	1270			0647	TAPPI	414
Initial Tear MD	Lbs	30.0			0761	ASTM	D1004
Initial Tear XD,	Lbs	19.2			0761	ASTM	D1004

INTERPRETATION

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Typically, DuPont test protocol requires averaging at least ten measurements representative of the package to produce the average value.



30 mil 410

T: (+44) 01903 235784  
F: +44 (0)1903 230855  
E: sales@candwseals.co.uk  
W: www.candwseals.co.uk

CUSTOMER PRODUCT SPECIFICATION  
E. I. du Pont de Nemours & Co., Inc.

FEATURES U.L. Recognized 220° Calendered Paper PRODUCT NOMEX® Aramid Paper  
 \_\_\_\_\_ DESCRIPTION/TYPE 30 Mil Type 410  
 CUSTOMER-USE/END-USE Electrical Applications PACKAGE UNIT Package  
 DATE EFFECTIVE 04/15/02 MERGE NO. 17990

PROPERTY	UNITS	AVERAGE VALUE			TEST METHODS		
		MIN.	TYPICAL	MAX	DU PONT	STD	
Basis Weight	Oz/Sq Yd	23.20	24.80	26.40	0656	ASTM	D646
Thickness	Mils	27.25	30.60	33.95	0656	ASTM	*
Density	Grams/CC	0.99	1.08	1.17	0656	ASTM	D646
Dielectric Strength	Volts/Mil	520			0635	ASTM	D149
Tensile MD	Lbs/in	418			0658	ASTM	D828
Tensile XD	Lbs/in	260			0658	ASTM	D828
Elongation MD	%	13.3			0658	ASTM	D828
Elongation XD	%	10.7			0658	ASTM	D828
Initial Tear MD	Lbs	43.7			0761	ASTM	D1004
Initial Tear XD,	Lbs	34.6			0761	ASTM	D1004

INTERPRETATION

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