Thermal Transfer Polyester Label Materials

7815 • 7815FL • 7818

Technical Data — May 2017

Product Description

3M™ Thermal Transfer Polyester Label Materials 7815, 7815FL and 7818 are matte white polyester label materials that offer excellent moisture resistance and thermal stability. These label products utilize 3M™ Acrylic Adhesive 310 which is a firm adhesive which resists oozing and provides high strength on a variety of surfaces including high surface energy (HSE) plastics and metals.

Construction

Product	Facestock	Adhesive	Liner
3M™ Label Material 7815	2.3 mils (58 microns) White Polyester Matte TT TC	0.8 mil (20 microns) 310 Acrylic	3.2 mils (81 microns) 55# Densified kraft
3M™ Label Material 7815FL	2.3 mils (58 microns) White Polyester Matte TT TC	0.8 mil (20 microns) 310 Acrylic	1.5 mils (38 microns) Polyester
3M™ Label Material 7818	2.0 mils (51 microns) Silver Polyester Matte TT TC	0.8 mil (20 microns) 310 Acrylic	3.2 mils (81 microns) 55# Densified kraft

(Calipers are nominal values.)

Features

- Topcoated to provide the advantages of matte coating combined with a surface that is smooth enough for thermal transfer printing. Resin ribbons are recommended for optimum durability. The matte coating resists degradation from scuffing, chemicals, moisture, and wide temperature fluctuations. The topcoat also provides improved ink anchorage for traditional forms of press printing.
- 3M™ Label Materials 7815 and 7818 55# densified kraft liner assures consistent die cutting.
- 3M™ Label Material 7815FL polyester liner contributes to improved die cutting by allowing for deeper die cuts than paper without the added concern of exposing paper fibers. A backside release coating helps minimize label blocking. The film liner resists breaking during high speed dispensing. The polyester liner is recommended for clean room applications.
- UL recognized (File MH16411) and CSA accepted (File 99316). See the UL and CSA listings for details.

Application Ideas

- Barcode labels and rating plates
- Property identification and asset labeling
- Warning, instruction, and service labels for durable goods
- Nameplates and durable goods

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Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Adhesive Coat Weight	1.05 to 1.21 g/100 $in.^2$	TM-2279
Release Range	5 to 50 g/2 in.	TLMI Method, 180° removal, 300 in./min.
Service Temperature	-40°F to 300°F (-40°C to 149°C)	
Minimum Application Temperature	50°F (10°C)	
Convertability	The firmness of 3M™ Acrylic Adhesive 310 is specifically designed to be compatible with thermal transfer and laser technologies. Adhesive processing issues are not anticipated when proper roll tensions, handling and storage conditions are used. Please refer to the die cutting/converting section of this data page or the "Guide to Converting and Handling Label Products" technical bulletin for additional information.	

Typical Peel Adhesion Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Adhesion: 180° peel test procedure is ASTM D 3330
90° peel test procedure is ASTM D 3330 modified for the angle change

	Initial (10 Minute Dwell/RT)				Conditioned for 3 Days at Room Temperature 72°F (22°C)			
	180° Peel		90° Peel		180° Peel		90° Peel	
Surface	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	43	47	35	38	51	56	41	45
Polycarbonate	47	51	37	40	52	57	43	47
Polypropylene	18	20	16	18	18	20	24	26
Glass	52	57	34	37	68	74	47	51
HD Polyethylene	24	26	16	18	33	36	20	22
LD Polyethylene	20	22	12	13	32	35	22	24

	Conditioned for 3 Days at 120°F (49°C)				Conditioned for 24 hours at 90°F (32°C) at 90% Relative Humidity			
	180° Peel		90° Peel		180° Peel		90° Peel	
Surface	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	60	66	46	50	74	81	46	50
Polycarbonate	41	45	32	35	62	68	40	44
Polypropylene	35	38	30	33	38	42	27	30
Glass	68	74	42	46	66	72	32	35
HD Polyethylene	30	33	20	22	35	38	27	30
LD Polyethylene	5	4	8	9	20	22	24	26

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Environmental Performance

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

The properties defined are based on four hour immersions at room temperature (72°F/22°C) unless otherwise noted. Samples were applied to stainless steel panels 24 hours prior to immersion and were evaluated one hour after removal from the solution for peel adhesion. Adhesion measured at 180° peel angle (ASTM D 3330) at 12 inches/minute.

Chemical Resistance:

	Adhesion to Stainless Steel		Appearance	Edge Penetration
Chemical	Oz./in.	N/100 mm	Visual	Millimeters
Isopropyl Alcohol	54	59	No change	1
Detergent 1% Alconox® Cleaner	66	72	No change	0
Engine Oil (10W30) @ 250°F (121°C)	70	77	No change	1.5
Water for 48 hours	72	79	No change	0
pH 4	70	77	No change	0
pH 10	66	72	No change	0
Formula 409® Cleaner	65	71	No change	0
Toluene	29	32	No change	6.3
Acetone	38	42	No change	4.5
Brake Fluid	77	84	No change	0
Gasoline	32	35	No change	5.5
Diesel Fuel	55	60	No change	1
Mineral Spirits	48	52	No change	2.3
Hydraulic Fluid	58	63	No change	0

Temperature Resistance: When applied to stainless steel. Other substrates should be tested per application.

300°F (149°C) for 24 hours: no significant visual change, 0.7% MD shrinkage, 0.8% CD shrinkage
-40°F (-40°C) for 10 days: no significant visual change

Humidity Resistance:

24 hours at 100°F (38°C) and 100% relative humidity: no significant change in appearance or adhesion

Accelerated Aging:

ASTM D 3611: 96 hours at 150°F (65°C) and 80% relative humidity

Product		Rate of Removal	Gram/Inch Width	N/100 mm
3M™ Thermal Transfer Polyester Label Material 7815 & 7818	180° Removal of Liner from Facestock	90 inches/minute	11	0.39
3M™ Thermal Transfer Polyester Label Material 7815FL	180° Removal of Liner from Facestock	90 inches/minute	8	0.31
3M™ Thermal Transfer Polyester Label Material 7815 & 7818	180° Peel Adhesion from Stainless Steel	12 inches/minute	49	1.89
3M™ Thermal Transfer Polyester Label Material 7815FL	180° Peel Adhesion from Stainless Steel	12 inches/minute	49	1.89

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Application Techniques

For maximum bond strength, the surface should be clean and dry. Typical cleaning solvents are heptane and isopropyl alcohol.*

For best bonding conditions, application surface should be at room temperature or higher. Low temperature surfaces, below 50°F (10°C), can cause the adhesive to become so firm that it will not develop maximum contact with the substrate. Higher initial bonds can be achieved through increased rubdown pressure.

*When using solvents, read and follow the manufacturer's precautions and directions for use.

Printing

Facestock is topcoated for improved ink receptivity and is designed for thermal transfer printing. It is printable by all standard roll processing methods including flexography, hot stamp, letterpress, and screen printing.

Thermal Transfer Printing

Printer: UL no longer requires evaluation and listing of specific printers.

Ink Ribbon/UL Recognized Components

Advent: 301 Black; 303 Black; 501 Black; 501 Red; 501 Blue; 501 Green
Armor: AXR-7; AXR-7+; AXR-600
Astromed: R5
CP: 5440 Red; 5640 Blue; 5940 Black
Dasco: DR-74; DR-84
Great Ribbon: SDR; GPR
ICS: ICS-CC-2000; ICS-CC-4099.1
Iimak: SH-36; SP-330; PrimeMark
Intermec: 051864-3; 053258-2; 054048-4; 054195-2
Japan Pulp and Paper: JP Resin 1; JP Resin 2 Blue; JP Resin 2 Red; JP Resin 2 Green
Kurz: K501
Markem: 716 (suitable for indoor use only)
Mid City Columbia: CGL-80; CGL-80HE
NCR: Matrix Resin; Matrix (suitable for indoor use only; PaceSetter; Promark II; Ultra V
Pelikan: T016
Ricoh: B110A; B110C; B110CS
Sato: Premier 1
Sony: 4050; 4051; 4070; 4072; 4075; 4085; 5070; Signature Series Resin; Signature Series Wax
UBI: HR03; HR04
Zebra: 5095; 5097; 5099; 5100; 5175; 5555

Laser Toner Printing

UL recognized with the following printers and toners.

Toner and Printer/UL Recognized Components

Hitachi HMT 446 toner kit for producing finished printed labels with UL listed Synergystex CT-1000 laser printer

Die Cutting / Converting

Rotary die cutting is recommended. Fanfolding of labels is not recommended. Small labels should be evaluated carefully. Winding tensions should be kept at a minimum to help prevent the adhesive from oozing.

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Packaging	Finished labels should be stored in plastic bags.
Storage	Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.
Shelf Life	If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.
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ISO 9001

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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