



Thermal Transfer Polyester Label Material

7871 • 7871FL • 7872 • 7872FL • 7873

Technical Data

May 2017

Product Description

3M™ Thermal Transfer Polyester Label Materials 7871, 7871FL, 7872, 7872FL and 7873 are gloss polyester label materials that offer premium durability and moisture resistance. These label products utilize 3M™ High Performance Acrylic Adhesive 350, it offers excellent chemical resistance and holding strength even at high temperatures.

Construction

Product	Facestock	Adhesive	Liner
3M™ Label Material 7871	.002 in. White Polyester Gloss TC (51 microns)	350 Acrylic 1.8 mils (46 microns)	55# Densified Kraft 3.2 mils (81 microns)
3M™ Label Material 7872	.002 in. Matte Platinum Polyester Gloss TC (51 microns)	350 Acrylic 1.8 mils (46 microns)	55# Densified Kraft 3.2 mils (81 microns)
3M™ Label Material 7873	.002 in. Bright Silver Polyester Gloss TC (51 microns)	350 Acrylic 1.8 mils (46 microns)	55# Densified Kraft 3.2 mils (81 microns)
3M™ Label Material 7871FL	.002 in. White Polyester Gloss TC (51 microns)	350 Acrylic 1.8 mils (46 microns)	Clear Polyester Liner 1.5 mils (38 microns)
3M™ Label Material 7872FL	.002 in. Matte Platinum Polyester Gloss TC (51 microns)	350 Acrylic 1.8 mils (46 microns)	Clear Polyester Liner 1.5 mils (38 microns)

(Calipers are nominal values.)

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Features

- Adhesive can permanently bond to high surface energy (HSE) and low surface energy (LSE) plastics, textured and contoured surfaces, powder coatings, and slightly oily metals.
 - Thick adhesive caliper provides for stronger bond on textured surfaces.
 - Facestock is topcoated for thermal transfer printing. Resin ribbons are recommended for optimum durability. The topcoat also provides improved ink anchorage for traditional forms of press printing.
 - 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.
 - UL listing includes approval for use on powder coated surfaces.
 - 3M™ Thermal Transfer Polyester Label Materials 7871 and 7872 satisfy the requirements of UL-197 for occasional exposure to cooking oil when applied to stainless steel surfaces.
 - 3M™ Thermal Transfer Polyester Label Materials 7871 meets British Standard BS-5609.
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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	2.70 to 3.24 g/100 in. ²	TM-2279
Release Range	5 to 70 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	In order to capture the superior performance properties of 3M™ High Holding Acrylic Adhesive 350, thicker calipers are utilized for LSE or textured substrates. Its higher caliper, while desirable for the end use applications, may require extra care during processing.	

Typical Peel Adhesion Properties

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

Surface	Initial (10 Minute Dwell/RT)				Conditioned for 3 Days at Room Temperature 72°F (22°C)			
	180° Peel		90° Peel		180° Peel		90° Peel	
	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	88	96	63	69	96	105	75	82
Polycarbonate	90	98	65	71	94	103	69	76
Polypropylene	73	80	29	32	83	91	31	34
Glass	93	102	69	76	99	108	77	84
HD Polyethylene	54	59	27	30	58	63	32	35
LD Polyethylene	53	58	30	32	56	61	37	40
Smooth Powder Coating*	85	93	–	–	89	97	–	–
Finely Textured Powder Coating*	49	54	–	–	52	57	–	–

Surface	Conditioned for 3 Days at 120F (49°C)				Conditioned for 24 hours at 90°F (32°C) at 90% Relative Humidity			
	180° Peel		90° Peel		180° Peel		90° Peel	
	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	108	118	96	105	99	108	81	89
Polycarbonate	66	72	34	37	77	84	59	64
Polypropylene	81	89	33	16	78	85	47	51
Glass	106	116	86	94	89	97	72	79
HD Polyethylene	56	61	32	35	50	55	38	42
LD Polyethylene	15	16	14	15	43	47	40	44
Smooth Powder Coating*	93	102	–	–	88	96	–	–
Finely Textured Powder Coating*	56	61	–	–	50	55	–	–

*Calculated using averages of different powder coated surfaces.

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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:

Chemical	Adhesion to Stainless Steel		Appearance	Edge Penetration
	Oz./in.	N/100 mm	Visual	Millimeters
Isopropyl Alcohol	88	96	No change	0.6
Detergent 1% Alconox® Cleaner	92	101	No change	1.3
Engine Oil (10W30) @ 250°F (121°C)	102	112	No change	0.6
Water for 48 hours	67	73	No change	0.1
pH 4	88	96	No change	0.7
pH 10	83	91	No change	1.4
Formula 409® Cleaner	92	101	No change	1.3
Toluene	50	55	No change	5.2
Acetone	59	65	No change	4.9
Brake Fluid	98	107	No change	0.1
Gasoline	56	61	No change	4.6
Diesel Fuel	93	102	No change	0.7
Mineral Spirits	80	88	No change	2.2
Hydraulic Fluid	96	105	No change	0.0

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 0.4% MD shrinkage 0.6% 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 7871(FL)	180° Peel Adhesion from Stainless Steel	12 inches/minute	87	95
3M™ Thermal Transfer Polyester Label Material 7872(FL)	180° Peel Adhesion from Stainless Steel	12 inches/minute	87	95
3M™ Thermal Transfer Polyester Label Material 7873	180° Peel Adhesion from Stainless Steel	12 inches/minute	87	95

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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. Refer to UL Listing for specific ribbons.

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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