



# Thermal Transfer Polyester Label Material

## 7874

Technical Data

October, 2007

**Product Description** 3M™ Label Material 7874 is a white polyester matte label stock that is designed for use in demanding applications that require the use of thermal transfer printing. This label product utilizes 3M™ Adhesive 350, which is a universal adhesive for label material that offers excellent chemical resistance and holding strength even at high temperatures.

**Construction**

(Calipers are nominal values.)

Facestock	Adhesive	Liner
2.3 mils (58 microns) White Polyester Matte TT TC	1.8 mils (46 microns) #350 Acrylic	3.2 mils (81 microns) 55# Densified kraft

**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 surface.
- Topcoat provides 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.
- 55# densified kraft liner assures consistent die cutting.
- 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.

<b>Adhesive Coat Weight</b>	2.70 to 3.24 g/100 in. <sup>2</sup>	TM-2279
<b>Release Range</b>	5 to 70 g/2 in.	TLMI Method, 180° removal, 300 in./min.
<b>Service Temperature</b>	-40°F to 300°F (-40°C to 149°C)	
<b>Minimum Application Temperature</b>	50°F (5°C)	
<b>Convertability</b>	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. 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

**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	79	86	56	61	90	98	78	85
Polycarbonate	81	89	61	67	86	94	67	73
Polypropylene	65	71	30	33	74	81	29	32
Glass	83	91	65	71	89	97	75	82
HD Polyethylene	46	50	28	31	51	56	32	35
LD Polyethylene	46	50	29	32	49	54	35	38
Smooth Powder Coating	73	80	48	52	77	84	50	55
Finely Textured Powder Coating	42	46	27	30	44	48	26	28

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	97	106	94	103	93	102	80	88
Polycarbonate	63	69	33	36	68	74	57	62
Polypropylene	79	86	34	37	68	74	42	46
Glass	96	105	83	91	80	88	70	77
HD Polyethylene	48	52	30	33	42	46	37	40
LD Polyethylene	14	15	13	14	38	42	38	42
Smooth Powder Coating	83	91	60	66	77	84	58	63
Finely Textured Powder Coating	49	54	33	36	45	49	28	31

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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	82	90	No change	0.9
Detergent 1% Alconox® Cleaner	85	93	No change	0.8
Engine Oil (10W30) @ 250°F (121°C)	96	105	No change	0.6
Water for 48 hours	61	67	No change	0.3
pH 4	79	86	No change	0.4
pH 10	74	81	No change	0.8
409® Formula	82	90	No change	0.9
Toluene	41	45	No change	6.3
Acetone	52	57	No change	5.6
Brake Fluid	85	93	No change	0.1
Gasoline	50	55	No change	4.8
Diesel Fuel	80	88	No change	0.8
Mineral Spirits	68	74	No change	2.4
Hydraulic Fluid	83	91	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

	Rate of Removal	Grams/Inch Width	N/100 mm
180° Removal of Liner from Facestock	90 inches/minute	13	0.50
	Rate of Removal	Oz./In. Width	N/100 mm
180° Peel Adhesion from Stainless Steel	12 inches/minute	76	83

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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.

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**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.

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**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.

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**Storage** Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.

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**Shelf Life** If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.

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## Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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**ISO 9001:2000**

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.



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