



Thermal Transfer Polyester Label Material

7868

FOD# 1412

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Technical Data

January 1, 1999

Supersedes March 9, 1998

Construction

(Calipers are nominal values.)

Facestock	Adhesive	Liner
2.0 mil (51 micron) Gloss radiant white polyester	1.1 mil (28 micron) #350 Acrylic	3.2 mil (81 micron) 55# Densified kraft

Features

- 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.
- #350 adhesive is 3M's most universal adhesive for label materials. It can permanently bond to high surface energy (HSE) and low surface energy (LSE) plastics, textured and contoured surfaces, powder coatings, and slightly oily metals. It has excellent chemical resistance and holding strength even at high temperatures.
- 55# densified kraft liner assures consistent die cutting.
- 3M™ Label Material 7868 is 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.

Application Ideas

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

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	72	79	47	51	83	91	73	80
Polycarbonate	70	77	46	50	75	82	52	57
Polypropylene	41	45	12	13	50	55	20	22
Glass	75	82	61	67	80	88	69	76
HD Polyethylene	37	40	13	14	40	44	19	21
LD Polyethylene	35	38	22	24	35	38	31	34
Smooth Powder Coating	65	71			66	72		
Finely Textured Powder Coating	35	38			36	39		

Surface	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	
	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	88	96	83	91	92	101	81	89
Polycarbonate	54	59	25	27	53	58	31	34
Polypropylene	50	55	22	24	36	39	25	27
Glass	84	92	74	81	81	89	68	74
HD Polyethylene	39	43	22	24	39	43	26	28
LD Polyethylene	11	12	11	12	25	27	33	36
Smooth Powder Coating	71	78			34	37		
Finely Textured Powder Coating	64	70			34	37		

Liner Release: 180° Removal of Liner from Facestock

Rate of Removal	Grams/Inch Width	N/100 mm
90 inches/minute	16	0.62
300 inches/minute	22	0.85

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Environmental Performance

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	71	78	No change	0.5
Detergent (1% Alconox®*)	82	90	No change	1.6
Engine Oil (10W30) @ 250°F (121°C)	82	90	No change	1.4
Water for 48 hours	83	91	No change	1.2
pH 4	77	84	No change	5.0
pH 10	77	84	No change	5.0
409®* Cleaning solution	84	92	No change	3.0
Toluene	38	42	No change	5.0
Acetone	53	58	No change	5.0
Brake Fluid	93	102	No change	0.6
Gasoline	48	52	No change	5.0
Diesel Fuel	80	88	No change	1.0
Mineral Spirits	69	76	No change	3.0
Hydraulic Fluid	88	96	No change	0.0

Temperature Resistance:

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 changes 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	12	0.46
	Rate of Removal	Oz./In. Width	N/100 mm
180° Peel Adhesion from Stainless Steel	12 inches/minute	76	83

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Shelf Life

Two years from date of manufacture of product when properly stored at 72°F (22°C) and 50% relative humidity.

**Agency Listing
Information****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

CPT™: 5440 Red; 5640 Blue; 5940 Black

Dasco: DR-74; DR-84

Great Ribbon: SDR

ICS: ICS-CC-4099.1

Iimak™: SH-36; SP-330; PrimeMark

Intermec: 053258-2; 054048-4

Japan Pulp and Paper: JP Resin 1; JP Resin 2 Blue; JP Resin 2 Red (suitable for indoor use only); JP Resin 2 Green (suitable for indoor use only)

Kurz™: K500; K501

Markem™: 716 (suitable for indoor use only)

Mid City Columbia™: CGL-80; CGL-80HE

NCR™: Matrix Resin; Matrix; PaceSetter; Promark II; Ultra V

Pelikan™: T016

Ricoh™: B110A; B110C; B110CX

Sato™: Premier 1

Sony™: 4070; 4072; 4075; 4085; 5070; Signature™ Series Resin;
Signature™ Series Wax

UBI™: HR03; HR04

Zebra™: 5095; 5099; 5100; 5175

Processing**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 the Graphic Ink Selection Guide or call 3M Customer Service at 1-800-223-7427 for additional information.

Die Cutting:

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.

Packaging:

Finished labels should be stored in plastic bags.

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Special Considerations

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

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

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.

Technical Information and Data

The technical information and data, recommendations, and other statements provided are based on tests or experience which 3M believes to be reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which 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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