



Thermal Transfer Polyester Label Material

7868

Technical Data

March, 2009

Product Description

3M™ Thermal Transfer Polyester Label Material 7868 is a gloss radiant white polyester label stock that offers premium durability and moisture resistance. 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
2.0 mils (51 microns) White Polyester Gloss TC	1.1 mils (28 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.
- 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.
- 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.
- UL listing includes approval for use on powder coated surfaces.
- Meets British Standard BS-5609.

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	1.75 to 2.02 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. 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.

	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	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	-	-

	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	
Surface	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	-	-

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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	71	78	No change	0.5
Detergent 1% Alconox® Cleaner	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® Formula	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: 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	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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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.

UL Recognized thermal transfer ribbons

Advent: 301 Black; 303 Black; 501 Black; 501 Red; 501 Blue; 501 Green

Aarmor: AXR-7; AXR-7+; AXR-600

Astromed: R5

CP: 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

ITW: B324

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

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.

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.

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

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