May, 2017

3M™ Thermal Transfer Polyester Label Material 7868

Product Description

3M™ Thermal Transfer Polyester Label Material 7868 is a gloss white polyester label stock that offers premium durability and moisture resistance. This label product utilizes 3M™ High Holding Acrylic Adhesive 350, which is a universal adhesive for label material that offers excellent chemical resistance and holding strength even at high temperatures.

Product 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.

3M™ Thermal Transfer Polyester Label Material 7868

Technical Information Note

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

Typical Physical Properties

Property	Values	
Facestock	White Polyester Gloss TC	
Facestock Thickness	0.051 mm	2.1 mil
Adhesive	#350 Acrylic	
Adhesive Thickness	0.028 mm	1.1 mil
Liner	55# Densified kraft	
Liner Thickness	0.081 mm	3.2 mil
Adhesive Coat Weight	1.75 to 2.02 g/100 in²	

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.

Note

Calipers are nominal values

Typical Performance Characteristics

Property	Values		Method	Notes
Service Temperature Range	-40 to 149 °C	-40 to 300 °F		
Minimum Application Temperature	10 °C	50 °F		
Liner Release Range	5 to 70 g/2 in		TLMI	180° removal, 300 in/min

180° Peel Adhesion		Dwell/Cure Time	Substrate
7.9 N/cm	72 oz/in	10 min @ Room Temperature	Stainless Steel
7.7 N/cm	70 oz/in	10 min @ Room Temperature	Polycarbonate (PC)
4.5 N/cm	41 oz/in	10 min @ Room Temperature	Polypropylene (PP)
8.2 N/cm	75 oz/in	10 min @ Room Temperature	Glass

Table continued on next page

Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Substrate
4.0 N/cm	37 oz/in	10 min @ Room Temperature	High Density Polyethylene (HDPE)
3.8 N/cm	35 oz/in	10 min @ Room Temperature	Low Density Polyethylene (HDPE)
7.1 N/cm	65 oz/in	10 min @ Room Temperature	**Smooth Powder Coating
3.8 N/cm	35 oz/in	10 min @ Room Temperature	**Finely Textured Powder Coating
9.1 N/cm	83 oz/in	72 hr @ Room Temperature	Stainless Steel
8.2 N/cm	75 oz/in	72 hr @ Room Temperature	Polycarbonate (PC)
5.5 N/cm	50 oz/in	72 hr @ Room Temperature	Polypropylene (PP)
8.8 N/cm	80 oz/in	72 hr @ Room Temperature	Glass
4.4 N/cm	40 oz/in	72 hr @ Room Temperature	High Density Polyethylene (HDPE)
3.8 N/cm	35 oz/in	72 hr @ Room Temperature	Low Density Polyethylene (LDPE)
7.2 N/cm	66 oz/in	72 hr @ Room Temperature	**Smooth Powder Coating
3.9 N/cm	36 oz/in	72 hr @ Room Temperature	**Finely Textured Powder Coating
9.6 N/cm	88 oz/in	72 hr @ 120°F(49°C)	Stainless Steel
5.9 N/cm	54 oz/in	72 hr @ 120°F(49°C)	Polycarbonate (PC)
5.5 N/cm	50 oz/in	72 hr @ 120°F(49°C)	Polypropylene (PP)
9.2 N/cm	84 oz/in	72 hr @ 120°F(49°C)	Glass
4.3 N/cm	39 oz/in	72 hr @ 120°F(49°C)	High Density Polyethylene (HDPE)
1.2 N/cm	11 oz/in	72 hr @ 120°F(49°C)	Low Density Polyethylene (LDPE)
7.8 N/cm	71 oz/in	72 hr @ 120°F(49°C)	**Smooth Powder Coating
7.0 N/cm	64 oz/in	72 hr @ 120°F(49°C)	**Finely Textured Powder Coating
10.1 N/cm	92 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Stainless Steel
5.8 N/cm	53 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polycarbonate (PC)
3.9 N/cm	36 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polypropylene (PP)
8.9 N/cm	81 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Glass
4.3 N/cm	39 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	High Density Polyethylene (HDPE)
2.7 N/cm	25 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Low Density Polyethylene (LDPE)
3.7 N/cm	34 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	**Smooth Powder Coating

Table continued on next page

Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Substrate
3.7 N/cm	34 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	**Finely Textured Powder Coating

Property: 180° Peel Adhesion
Method: ASTM D3330

90° Peel Adhesion		Dwell/Cure Time	Substrate
5.1 N/cm	47 oz/in	10 min @ Room Temperature	Stainless Steel
5.0 N/cm	46 oz/in	10 min @ Room Temperature	Polycarbonate (PC)
1.3 N/cm	12 oz/in	10 min @ Room Temperature	Polypropylene (PP)
6.7 N/cm	61 oz/in	10 min @ Room Temperature	Glass
1.4 N/cm	13 oz/in	10 min @ Room Temperature	High Density Polyethylene (HDPE)
2.4 N/cm	22 oz/in	10 min @ Room Temperature	Low Density Polyethylene (HDPE)
8.0 N/cm	73 oz/in	72 hr @ Room Temperature	Stainless Steel
5.7 N/cm	52 oz/in	72 hr @ Room Temperature	Polycarbonate (PC)
2.2 N/cm	20 oz/in	72 hr @ Room Temperature	Polypropylene (PP)
7.6 N/cm	69 oz/in	72 hr @ Room Temperature	Glass
2.1 N/cm	19 oz/in	72 hr @ Room Temperature	High Density Polyethylene (HDPE)
3.4 N/cm	31 oz/in	72 hr @ Room Temperature	Low Density Polyethylene (HDPE)
9.1 N/cm	83 oz/in	72 hr @ 120°F(49°C)	Stainless Steel
2.7 N/cm	25 oz/in	72 hr @ 120°F(49°C)	Polycarbonate (PC)
2.4 N/cm	22 oz/in	72 hr @ 120°F(49°C)	Polypropylene (PP)
8.1 N/cm	74 oz/in	72 hr @ 120°F(49°C)	Glass
2.4 N/cm	22 oz/in	72 hr @ 120°F(49°C)	High Density Polyethylene (HDPE)
1.2 N/cm	11 oz/in	72 hr @ 120°F(49°C)	Low Density Polyethylene (LDPE)
8.9 N/cm	81 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Stainless Steel
3.4 N/cm	31 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polycarbonate (PC)
2.7 N/cm	25 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polypropylene (PP)
7.4 N/cm	68 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Glass
2.8 N/cm	26 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	High Density Polyethylene (HDPE)

Table continued on next page

Typical Performance Characteristics (continued)

90° Peel Adhesion		Dwell/Cure Time	Substrate
3.6 N/cm	33 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Low Density Polyethylene (LDPE)

Property: 90° Peel Adhesion
Method: ASTM D3330

Available Sizes

Packaging

Finished labels should be stored in plastic bags.

Typical Environmental Performance

Chemical and Environmental Exposure

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.

	Adhesion to Stainless Steel		Appearance	Edge Penetration
Chemical	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

Humidity Resistance

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

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

Accelerated Aging		Notes
0.046 N/cm	12 g/in	180° Removal of Liner from Facestock at 90 in/min
8.3 N/cm	76 oz/in	180° Peel Adhesion from Stainless Steel at 12 in/min

Property: Accelerated Aging
Method: ASTM D3611
Test Condition : 96 hr @ 150°F (65°C) and 80% relative humidity

3M™ Thermal Transfer Polyester Label Material 7868

Handling/Application Information

Application Ideas

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

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
Armor: 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

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.

Storage and Shelf Life

Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.
If stored under proper conditions, product retains its performance and properties for 24 months from date of manufacture.

Industry Specifications

UL Recognized (File MH16411)
CSA Accepted (File 99316)

Trademarks

References

Safety Data Sheet (SDS)

https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7868

ISO Statement

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

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Industrial Adhesives and Tapes Division
3M Center
St. Paul, MN 55144-1000
800-362-3550
www.3M.com