

July, 2007

## 3M™ Thermal Transfer Polyester Label Material 7331/7860

### Product Description

3M™ Thermal Transfer Polyester Label Materials are durable polyester stocks that offer high abrasion and chemical resistance. These materials utilize 3M™ Adhesive 300, which has excellent quick tack and also bonds well to a variety of surfaces including LSE plastics.



### Product 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.
- Adhesive bonds well to a wide variety of substrates including metals, high surface energy (HSE) plastics and low surface energy (LSE) plastics. It is ideal for applications requiring high initial adhesion especially to LSE plastic surfaces.
- 55# densified kraft liner assures consistent die cutting.
- UL recognized (File MH11410) and CSA accepted (File 99316).

## 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 mil
Adhesive	#300 Acrylic	
Adhesive Thickness	0.02 mm	0.8 mil
Liner	55# Densified kraft	
Liner Thickness	0.081 mm	3.2 mil
Adhesive Coat	1.08 to 1.62 g/in <sup>2</sup> ± 10%	

## Convertability

3M™ High Strength Acrylic Adhesive 300 is designed to be compatible with a variety of print methods and end use applications. Due to the quick flowing aggressive nature of this adhesive, care should be taken when converting labels for thermal transfer applications. 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	10 to 60 g/2 in		TLMI	180° removal, 300 in/min

180° Peel Adhesion		Dwell/Cure Time	Substrate
6.1 N/cm	56 oz/in	10 min @ Room Temperature	Stainless Steel
6.7 N/cm	59 oz/in	10 min @ Room Temperature	Polycarbonate (PC)
5.8 N/cm	53 oz/in	10 min @ Room Temperature	Polypropylene (PP)
6.6 N/cm	60 oz/in	10 min @ Room Temperature	Glass

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## Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Substrate
3.8 N/cm	35 oz/in	10 min @ Room Temperature	High Density Polyethylene (HDPE)
3.5 N/cm	32 oz/in	10 min @ Room Temperature	Low Density Polyethylene (HDPE)
7.3 N/cm	67 oz/in	72 hr @ Room Temperature	Stainless Steel
6.7 N/cm	61 oz/in	72 hr @ Room Temperature	Polycarbonate (PC)
6.1 N/cm	56 oz/in	72 hr @ Room Temperature	Polypropylene (PP)
7.8 N/cm	71 oz/in	72 hr @ Room Temperature	Glass
4.4 N/cm	40 oz/in	72 hr @ Room Temperature	High Density Polyethylene (HDPE)
4.6 N/cm	42 oz/in	72 hr @ Room Temperature	Low Density Polyethylene (LDPE)
7.7 N/cm	70 oz/in	72 hr @ 158°F(70°C)	Stainless Steel
3.3 N/cm	30 oz/in	72 hr @ 158°F(70°C)	Polycarbonate (PC)
5.9 N/cm	54 oz/in	72 hr @ 158°F(70°C)	Polypropylene (PP)
7.7 N/cm	70 oz/in	72 hr @ 158°F(70°C)	Glass
4.4 N/cm	40 oz/in	72 hr @ 158°F(70°C)	High Density Polyethylene (HDPE)
1 N/cm	9 oz/in	72 hr @ 158°F(70°C)	Low Density Polyethylene (HDPE)
7.4 N/cm	68 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Stainless Steel
6 N/cm	55 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polycarbonate (PC)
7.2 N/cm	66 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polypropylene (PP)
7.3 N/cm	67 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Glass
4.9 N/cm	45 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	High Density Polyethylene (HDPE)
3.9 N/cm	36 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Low Density Polyethylene (LDPE)

Property: 180° Peel Adhesion  
Method: ASTM D3330

90° Peel Adhesion		Dwell/Cure Time	Substrate
4.6 N/cm	42 oz/in	10 min @ Room Temperature	Stainless Steel
4.8 N/cm	44 oz/in	10 min @ Room Temperature	Polycarbonate (PC)
4.2 N/cm	38 oz/in	10 min @ Room Temperature	Polypropylene (PP)
4.6 N/cm	42 oz/in	10 min @ Room Temperature	Glass
3.1 N/cm	28 oz/in	10 min @ Room Temperature	High Density Polyethylene (HDPE)

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**Typical Performance Characteristics (continued)**

90° Peel Adhesion		Dwell/Cure Time	Substrate
2.7 N/cm	25 oz/in	10 min @ Room Temperature	Low Density Polyethylene (HDPE)
5 N/cm	46 oz/in	72 hr @ Room Temperature	Stainless Steel
5 N/cm	46 oz/in	72 hr @ Room Temperature	Polycarbonate (PC)
4.2 N/cm	38 oz/in	72 hr @ Room Temperature	Polypropylene (PP)
5.2 N/cm	48 oz/in	72 hr @ Room Temperature	Glass
3.1 N/cm	28 oz/in	72 hr @ Room Temperature	High Density Polyethylene (HDPE)
3.7 N/cm	34 oz/in	72 hr @ Room Temperature	Low Density Polyethylene (HDPE)
5.5 N/cm	50 oz/in	72 hr @ 158°F(70°C)	Stainless Steel
1.9 N/cm	17 oz/in	72 hr @ 158°F(70°C)	Polycarbonate (PC)
4.6 N/cm	42 oz/in	72 hr @ 158°F(70°C)	Polypropylene (PP)
5.5 N/cm	50 oz/in	72 hr @ 158°F(70°C)	Glass
3.2 N/cm	29 oz/in	72 hr @ 158°F(70°C)	High Density Polyethylene (HDPE)
1.1 N/cm	10 oz/in	72 hr @ 158°F(70°C)	Low Density Polyethylene (HDPE)
5.8 N/cm	53 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Stainless Steel
3.9 N/cm	36 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polycarbonate (PC)
4.8 N/cm	44 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polypropylene (PP)
4.8 N/cm	44 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Glass
3.5 N/cm	32 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	High Density Polyethylene (HDPE)
3.3 N/cm	30 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.

**Typical Environmental Performance (continued)**

Chemical	Adhesion to Stainless Steel		Appearance	Edge Penetration
	Oz./in.	N/100 mm	Visual	Millimeters
Isopropyl Alcohol	60	66	No change	0.8
Detergent 1% Alconox® Cleaner	64	70	No change	0
Engine Oil (10W30) @ 250°F (121°C)	64	70	No change	1
Water for 48 hours	66	72	No change	0
pH 4	65	71	No change	0
pH 10	64	70	No change	0
Formula 409® Cleaner	64	70	No change	0
Toluene	33	36	No change	6.5
Acetone	47	51	No change	4.3
Brake Fluid	74	81	No change	0
Gasoline	36	39	No change	5.8
Diesel Fuel	62	68	No change	1
Mineral Spirits	54	59	No change	2.4
Hydraulic Fluid	66	72	No change	0

**Humidity Resistance**

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

**Temperature Resistance**

300°F (149°C) for 24 hours: no significant visual change

-40°F (-40°C) for 10 days: no significant visual change

Accelerated Aging		Notes
0.062 N/cm	16 g/in	180° Removal of Liner from Facestock at 90 in/min
5.9 N/cm	54 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

**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.

# 3M™ Thermal Transfer Polyester Label Material 7331/7860

## Printing

Facestock is topcoated for improved ink receptivity and is designed for thermal transfer printing. It is also printable by all standard roll processing methods including flexography, hot stamp, letterpress, and screen printing.

UL Recognized thermal transfer ink ribbons

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

Armor: AXR-7; AXR-7+; AXR-600

Astromed: R5, RRT, RV, RAF Blue

CP: 5440 Red; 5640 Blue; 5940 Black

Dasco: DR-74; DR-84

Great Ribbon: SDR

ICS: ICS-CC-4099.1

Iimak: 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; K815

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; TR6070; TR6075; Signature Series Resin; Signature Series Wax

UBI: HRO3; HRO4

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 (Files MH11410 and MH16411)

CSA Accepted (File 99316)

## Trademarks

3M is a trademark of 3M Company.

Alconox is a registered trademark of Alconox, Inc.

409 is a registered trademark of Clorox.

## 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=7331/7860](https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7331/7860)

## Family Group

	7222/7865	7323/7863	7331/7860
Facestock	Matte Silver Polyester Gloss TC	Bright Silver Polyester Gloss TC	White Polyester Gloss TC
Facestock Thickness (mm)	0.051	0.051	0.051

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**Family Group (continued)**

	7222/7865	7323/7863	7331/7860
Adhesive	#300 Acrylic	#300 Acrylic	#300 Acrylic
Adhesive Thickness (mm)	0.02	0.02	0.02
Liner	55# Densified kraft	55# Densified kraft	55# Densified kraft
Liner Thickness (mm)	0.081	0.081	0.081

**ISO Statement**

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

**Information**

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