



Polypropylene Label Material

7776

Technical Data

March, 2012

Product Description

3M™ Polypropylene Label Material 7776 is a durable polypropylene label stock that offers excellent performance in applications requiring surface conformability. This label product utilizes 3M™ Adhesive 310, which is a firm adhesive which resists oozing and provides high strength on a variety of surfaces including high surface energy (HSE) plastics and metals.

Construction

(Calipers are nominal values.)

Facestock	Adhesive	Liner
2.6 mils (66 microns) White Polypropylene T2S	0.8 mil (20 microns) 310 Acrylic	3.2 mils (81 microns) 55# Densified kraft

Features

- Corona-treated facestock for improved ink receptivity.
- Bright white and high opacity facestock with good film stiffness that allows easy die cutting and dispensing for automatic applications.
- Liner is designed for high-speed diecutting and matrix stripping. Not recommended for sheet on press applications. The liner backside is flexographically printable.
- Indoor UL and CSA approved. See UL (File MH16411) and CSA (File 99316) listings for details.

Application Ideas

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

3M™ Polypropylene Label Material

7776

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	1.05 to 1.21 g/100 in. ²	TM-2279
Release Range	5 to 35 g/2 in.	TLMI Method, 180° removal, 300 in./min.
Service Temperature Extended	-40°F to 175°F (-40°C to 79°C)	
Minimum Application Temperature	50°F (10°C)	
Convertability	The firmness of 3M™ High Precision Acrylic Adhesive 310 is specifically designed to be compatible with thermal transfer and laser technologies. Adhesive processing issues are not anticipated when proper roll tensions, handling and storage conditions are used. Please refer to the 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

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.

	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	38	42	35	38	49	54	53	58
Polycarbonate	45	49	38	42	48	52	53	58
Polypropylene	22	24	11	12	25	27	16	18
Glass	41	45	34	37	50	55	50	55
HD Polyethylene	21	23	9	10	25	27	7	8
LD Polyethylene	21	23	8	9	21	23	8	9

	Conditioned for 3 Days at 158°F (70°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	Film split	Film split	49	54	62	68	46	50
Polycarbonate	Film split	Film split	19	21	48	52	50	55
Polypropylene	26	28	14	15	30	33	14	15
Glass	Film split	Film split	48	52	45	49	41	45
HD Polyethylene	19	21	9	10	25	27	15	16
LD Polyethylene	18	20	12	13	23	25	13	14

3M™ Polypropylene Label Material

7776

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 90° 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	42	46	No change	0.7
Detergent 1% Alconox® Cleaner	51	56	No change	0
Engine Oil (10W30) @ 250°F (121°C)	2	2	Color nearly transparent	Total
Water for 48 hours	38	42	No change	0
pH 4	49	54	No change	0
pH 10	47	51	No change	0
409® Formula	44	48	No change	0.7
Toluene	0	0	Wrinkling; shrinkage; color nearly transparent	Total
Acetone	25	27	No change	4.8
Brake Fluid	43	47	No change	0
Gasoline	2	2	Wrinkling; color nearly transparent	Total
Diesel Fuel	36	39	No change	1
Mineral Spirits	13	14	Wrinkling	5.7
Hydraulic Fluid	47	51	No change	0

Temperature Resistance:

300°F (149°C) for 24 hours: Slight discoloration; 8% shrinkage MD; 14% shrinkage CD
250°F (121°C) for 24 hours: 4% shrinkage MD; 4% shrinkage CD
175°F (79°C) for 24 hours: No significant visual change
-40°F (-40°C) for 10 days: No significant visual change

Humidity Resistance:

24 hours at 90°F (32°C) and 90% 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

3M™ Polypropylene Label Material

7776

Application Techniques

- For maximum bond strength, surface should be thoroughly cleaned and dried. A typical cleaning solvent is heptane or isopropyl alcohol. **Note:** Follow the manufacturer's precautions and directions for use when using solvents.
- For best bonding conditions, application surface should be at room temperature or higher. Low temperature surfaces, below 50°F (10°C), cause the adhesive to become firm and will not allow the adhesive to flow and develop intimate contact with the substrate.
- Higher initial bonds can be achieved through increased rubdown pressure. Use a rubber roller with maximum hand pressure for best results.

Printing

Facestock is corona treated for ink receptivity. While not specifically designed for thermal transfer printing, acceptable performance is found for a number of applications. As always, the customer should test to confirm acceptability for their application. Facestock is printable by all standard roll processing methods including flexography, hot stamp, letterpress, and screen printing.

The following thermal transfer ink ribbons are suggested:

Armor: AXR-7+; AXR-600

Dai Nippon: R-300; R-316; M-230

ICS: 4099-1

Iimak: SP-330; PrimeMark

Intermec: Premium

Mid City Columbia: GGL-80; GGL-80HE

Ricoh: B110A, B110C

Sony: TR4070, TR5070, TR6075

Zebra: 4065; 5095

Note: Whenever printing for the first time, with a different ink system or on a new machine, we strongly recommend carrying out proofing trials to validate ink adhesion and durability prior to a full production run.

Die Cutting/Converting

Die cutting:

Rotary die cutting is recommended. This label material should be tested prior to use in applications utilizing fan-folding to validate suitability. Small labels should be evaluated carefully. While this adhesive is very firm, winding tensions should be kept at a minimum to help prevent any unintentional adhesive ooze as a result of poor handling.

Dispensing:

Capable of being both manual and automatically dispensed. Be sure to test in every unique dispensing application to determine suitability.

Packaging

Finished labels should be stored in plastic bags.

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7776

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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