

3 M Label Material 7831

Thermal Transfer Polyester Label Material

Product Data Sheet

Updated : April 2004
Supersedes : May 2000

Physical Properties
Not for specification purposes
(Calipers are nominal values)

Facestock	25 micron (1.0 thou) Gloss Clear Polyester
Adhesive	20 micron (0.8 thou) #400 Acrylic
Liner	81 micron (3.2 thou), 90 g/m ² (55#) Densified Kraft
Shelf Life	24 months from date of manufacture of product when properly stored between 22°C and 50% relative humidity.

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.
- #400 adhesive offers excellent low temperature performance and peel adhesion to a wide variety of substrates. It has excellent long term ageing that resists yellowing.
- 90 g/m² (#55) densified kraft liner assures consistent die cutting.
- 3M™ Label Material 7831 is UL recognised (File MH16411) and CSA accepted (File 99316). See the UL and CSA listings for details.

Application Ideas:

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

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**Performance
 Characteristics**
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Surface	Initial (10 Minute Dwell/RT)			
	180° Peel		90° Peel	
	N/10mm	Oz/In	N/10mm	Oz/In
Stainless Steel	3.2	29	2.5	23
Polycarbonate	3.6	33	3.1	28
Polypropylene	3.0	27	2.1	19
Glass	3.5	32	2.6	24
HD Polyethylene	1.3	12	0.9	8
LD Polyethylene	1.2	11	1.0	9

Surface	Conditioned for 3 Days at Room Temperature 22°C			
	180° Peel		90° Peel	
	N/10mm	Oz/In	N/10mm	Oz/In
Stainless Steel	4.5	41	3.5	32
Polycarbonate	4.3	39	4.0	37
Polypropylene	3.2	29	2.8	26
Glass	4.4	40	4.4	40
HD Polyethylene	1.5	14	1.3	12
LD Polyethylene	1.5	14	1.9	17

Surface	Conditioned for 3 Days at 49°C			
	180° Peel		90° Peel	
	N/10mm	Oz/In	N/10mm	Oz/In
Stainless Steel	5.0	46	4.2	38
Polycarbonate	2.8	26	3.0	27
Polypropylene	3.5	32	2.7	25
Glass	5.5	50	4.2	38
HD Polyethylene	2.3	21	1.6	15
LD Polyethylene	0.5	5	0.8	7

Surface	Conditioned for 24 hours at 32°C At 90% Relative Humidity			
	180° Peel		90° Peel	
	N/10mm	Oz/In	N/10mm	Oz/In
Stainless Steel	7.3	67	3.6	33
Polycarbonate	3.7	34	3.6	33
Polypropylene	3.1	28	2.3	21
Glass	5.1	47	2.8	26
HD Polyethylene	1.9	17	1.6	15
LD Polyethylene	1.1	10	1.9	17

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Performance Characteristics Contd...
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Liner Release	180° Removal of Liner from Facestock		
	Rate of Removal	N/10mm	Gms/25mm Width
	2.3 m / min	0.090	28
	7.6 m / min	0.139	36

Environmental Performance	The properties defined are based on four hour immersions at room temperature 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 D3330) at 305 mm/min.			
Chemical Resistance	Adhesion to Stainless Steel		Appearance	Edge Penetration
Chemical	N/10mm	Oz/In	Visual	Millimetres
Isopropyl Alcohol	4.3	39	No change	0
Detergent (1% Alconox®*)	4.6	42	No change	0
Engine Oil (10W30) @ 250°F (121°C)	5.8	53	No change	2
Water for 48 hours	6.8	62	No change	0
pH 4	4.7	43	No change	0
PH10	4.8	44	No change	0
409®* Cleaning solution	4.9	45	No change	0
Toluene	2.5	23	No change	7
Acetone	3.1	28	No change	5
Brake Fluid	5.9	54	No change	0
Gasoline	2.6	24	No change	6
Diesel Fuel	4.3	39	No change	1.5
Mineral Spirits	3.7	34	No change	3
Hydraulic Fluid	4.7	43	No change	0

Temperature Resistance	149°C for 24 hours:	no significant visual change
	-40°C for 3 days:	no significant visual change
Humidity Resistance	24 hours at 38°C and 100% relative humidity	no significant changes in appearance or adhesion

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Accelerated Ageing

ASTM D3611 : 96 hours at 65°C & 80% relative humidity

	Rate of Removal	N/10mm Width	Oz/Inch
180° Peel Adhesion from Stainless Steel	305 mm / minute	3.2	29

Processing

Printing:

Facestock is topcoated for improved ink receptivity and is designed for thermal transfer printing. Resin ribbons are recommended for optimum durability. 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 for additional information.

*Ink Ribon /UL Recognised Components:

Armor: AXR-7; AXR-7+

Dasco: DR-74; DR-84

Great Ribbon: SDR

limak™: SH-36; SP-330

Ricoh™: B110C, B110CX

Sato™: Premier 1

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

UBI™: HR03; HR04

Zebra™: 5099, 5175

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.

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 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.

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes.

Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications.

This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

Tapes & Adhesives Group

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