



Label Material 77501

Thermal Transfer Polyester Label Material

Product Data Sheet

Updated : May 2000
Supersedes : February 1999

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

Facestock	51 micron (2.0 thou) Gloss Radiant White Polyester
Adhesive	46 micron (1.8 thou) #350 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.
- #350 adhesive is 3M's most universal adhesive for label materials. It can permanently bond to high surface energy (HSE) and low surface energy (LSE) plastics, textured and contoured surfaces, powder coatings, and slightly oily metals. It has excellent chemical resistance and holding strength even at high temperatures.
- 90g/m² densified kraft liner assures consistent die cutting.
- 3M™ Label Material 77501 is UL recognised (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.

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	9.6	88	6.9	63
Polycarbonate	9.8	90	7.1	65
Polypropylene	8.0	73	3.2	29
Glass	10.2	93	7.6	69
HD Polyethylene	5.9	54	3.0	27
LD Polyethylene	5.8	53	3.2	30
Smooth Powder Coating	9.3	85		
Finely Textured Powder Coating	5.4	49		

Surface	Conditioned for 3 Days at Room Temperature 22°C			
	180° Peel		90° Peel	
	N/10mm	Oz/In	N/10mm	Oz/In
Stainless Steel	10.5	96	8.2	75
Polycarbonate	10.3	94	7.6	69
Polypropylene	9.1	83	3.4	31
Glass	10.8	99	8.4	77
HD Polyethylene	6.3	58	3.5	32
LD Polyethylene	6.1	56	4.0	37
Smooth Powder Coating	9.7	89		
Finely Textured Powder Coating	5.7	52		

Surface	Conditioned for 3 Days at 49°C			
	180° Peel		90° Peel	
	N/10mm	Oz/In	N/10mm	Oz/In
Stainless Steel	11.8	108	10.5	96
Polycarbonate	7.2	66	3.7	34
Polypropylene	8.9	81	1.6	33
Glass	11.6	106	9.4	86
HD Polyethylene	6.1	56	3.5	32
LD Polyethylene	1.6	15	1.5	14
Smooth Powder Coating	10.2	93		
Finely Textured Powder Coating	6.1	56		

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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	10.8	99	8.9	81
Polycarbonate	8.4	77	6.4	59
Polypropylene	8.5	78	5.1	47
Glass	9.7	89	7.9	72
HD Polyethylene	5.5	50	4.2	38
LD Polyethylene	4.7	43	4.4	40
Smooth Powder Coating	9.6	88		
Finely Textured Powder Coating	5.5	50		

Performance Characteristics Contd...
Not for specification purposes

Liner Release	180° Removal of Liner from Facestock		
	Rate of Removal	N/10mm	Gms/25mm Width
	2.3 m / min	0.062	16
7.6 m / min	0.085	22	

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. www.cj-gz.com			
Chemical Resistance	Adhesion to Stainless Steel		Appearance	Edge Penetration
Chemical	N/10mm	Oz/In	Visual	Millimetres
Isopropyl Alcohol	9.6	88	No change	0.6
Detergent (1% Alconox®*)	10.1	92	No change	1.3
Engine Oil (10W30) @ 250°F (121°C)	11.2	102	No change	0.6
Water for 48 hours	7.3	67	No change	0.1
pH 4	9.6	88	No change	0.7
PH10	9.1	83	No change	1.4
409®* Cleaning solution	10.1	92	No change	1.3
Toluene	5.5	50	No change	5.2
Acetone	6.5	59	No change	4.9
Brake Fluid	10.7	98	No change	0.1
Gasoline	6.1	56	No change	4.6
Diesel Fuel	10.2	93	No change	0.7
Mineral Spirits	8.8	80	No change	2.2
Hydraulic Fluid	10.5	96	No change	0

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Temperature Resistance	149°C for 24 hours:	no significant visual change 0.4% MD shrinkage 0.6% CD shrinkage
	-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

Accelerated Ageing ASTM D3611 : 96 hours at 65°C & 80% relative humidity			
	Rate of Removal	N/10mm	Grams / Inch Width
180° Removal of Liner from Facestock	2.3 m / min	0.046	12
	Rate of Removal	N/10mm	Oz / Inch Width
180° Peel Adhesion from Stainless Steel	305 mm / min	9.5	87

Processing

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.

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. www.cj-gz.com

Packaging:

Finished labels should be stored in plastic bags.

Agency Listing Information

Thermal Transfer Printing:

Printer: UL no longer requires evaluation and listing of specific printers.

*Ink Ribbon/UL Recognised Components

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; GRP

ICS: ICS-CC-2000; ICS-4099.1

limak™: SH-36; SP-330; PrimeMark

Intermec: 051864-3; 053258-2; 054048-4; 054195-2

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™: K501

Markem™: 716 (suitable for indoor use only)

Mid City Columbia™: CGL-80; CGL-80HE

NCR™: Matrix Resin; Matrix (suitable for indoor use only); Pace Setter;

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, 5099, 5100, 5175

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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

3M United Kingdom PLC
 3M House, PO Box 1,
 Market Place,
 Bracknell, Berkshire,
 RG12 1JU

Product Information :
 Tel 020-82250840
 Fax 020-82065582

3M Ireland
 3M House, Adelphi Centre,
 Upper Georges Street,
 Dun Laoghaire, Co. Dublin,
 Ireland

© 3M United Kingdom PLC 2000
www.cj-gz.com
 Customer Service :
 Tel (020) 82250840
 Fax (020) 82065582