Label Material 7810

Thermal Transfer Polyester Label Material

Product Data Sheet

Updated : April 2000
Supersedes : March 1999

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

Facestock	58 micron (2.3 thou) Matte Radiant White Polyester
Adhesive	20 micron (0.8 thou) #300 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:

- Matte topcoat provides the advantages of matte coating combined with a surface that is smooth enough for thermal transfer printing. Resin ribbons are recommended for optimum durability. The matte coating resists degradation from scuffing, chemicals, moisture, and wide temperature fluctuations. The topcoat also provides improved ink anchorage for traditional forms of press printing.
- #300 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.
- 90 g/m^2 densified kraft liner assures consistent die cutting.
- 3M™ Label Material 7810 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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Adhesion	180° peel test procedure is ASTM D 3330 90° peel test procedure is ASTM D 3330 modified for the angle change			
Surface	**Initial (10 Minute Dwell/RT)**			
	180º Peel		**90º Peel**	
	N/10mm	**Oz/In**	**N/10mm**	**Oz/In**
Stainless Steel	6.1	56	4.6	42
Polycarbonate	5.9	59	4.8	44
Polypropylene	5.3	53	4.2	38
Glass	6.0	60	4.6	42
HD Polyethylene	3.8	35	3.1	28
LD Polyethylene	3.5	32	2.7	25

Surface	**Conditioned for 3 Days at Room Temperature 22ºC**			
	180º Peel		**90º Peel**	
	N/10mm	**Oz/In**	**N/10mm**	**Oz/In**
Stainless Steel	7.3	67	5.0	46
Polycarbonate	6.7	61	5.0	46
Polypropylene	6.1	56	4.2	38
Glass	7.8	71	5.2	48
HD Polyethylene	4.4	40	3.1	28
LD Polyethylene	4.6	42	3.7	34

Surface	**Conditioned for 3 Days at 49ºC**			
	180º Peel		**90º Peel**	
	N/10mm	**Oz/In**	**N/10mm**	**Oz/In**
Stainless Steel	7.7	70	5.5	50
Polycarbonate	3.3	30	1.9	17
Polypropylene	5.9	54	4.6	42
Glass	7.7	70	5.5	50
HD Polyethylene	4.4	40	3.2	29
LD Polyethylene	1.0	9	1.1	10

Surface	**Conditioned for 24 hours at 32ºC At 90% Relative Humidity**			
	180º Peel		**90º Peel**	
	N/10mm	**Oz/In**	**N/10mm**	**Oz/In**
Stainless Steel	7.4	68	5.8	53
Polycarbonate	6.0	55	3.9	36
Polypropylene	7.2	66	4.8	44
Glass	7.3	67	4.8	44
HD Polyethylene	4.9	45	3.5	32
LD Polyethylene	3.9	36	3.3	30

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Performance Characteristics Contd…
Not for specification purposes

Liner Release	180º Removal of Liner from Facestock		
	Rate of Removal	N/10mm	Gms/25mm Width
	2.3 m / min	0.054	14
	7.6 m / min	0.069	18

Environmental Performance	The properties defined are based on four hour immersions at room temperature 22ºC 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 180º 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	6.6	60	No change	0.8
Detergent (1% Alconox®*)	7.0	64	No change	0
Engine Oil (10W30) @ 250ºF (121ºC)	7.0	64	No change	1
Water for 48 hours	7.2	66	No change	0
pH 4	7.1	65	No change	0
PH10	7.0	64	No change	0
409[8]* Cleaning solution	7.0	64	No change	0
Toluene	3.6	33	Topcoat Damaged	6.5
Acetone	5.1	47	Topcoat Damaged or Gone	4.3
Brake Fluid	8.1	74	No change	0
Gasoline	3.9	36	No change	5.8
Diesel Fuel	6.8	62	No change	1
Mineral Spirits	5.9	54	No change	2.4
Hydraulic Fluid	7.2	66	No change	0

Temperature Resistance	149°C for 24 hours:	no significant visual change 0.75% MD shrinkage 0.9% 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

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Accelerated Ageing **ASTM D3611 : 96 hours at 65ºC & 80% relative humidity**			
	Rate of Removal	**N/10mm**	**Grams/In Width**
180º Removal of Liner from Facestock	2.3 m / minute	0.062	16
	Rate of Removal	**N/10mm**	**Oz/In Width**
180º Peel Adhesion from Stainless Steel	305 mm / minute	0.059	54

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-CC-4099.1

Iimak™: 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; JP Resin 2 Green

Kurz™: K501

Markem™: 716

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™: 4050, 4051, 4070; 4072; 4075; 4085; 5070; Signature™ Series Resin; Signature™ Series Wax

UBI™: HR03; HR04

Zebra™: 5095, 5097, 5099, 5100, 5175, 5555

Laser Toner Printing

UL recognised with the following printers and toners.

*Toner and Printer/UL Recognised Components

Hitachi HMT 446 toner kit for producing finished printed labels with UL listed Synergystex CT-1000 laser printer.

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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.

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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