



# Label Material 7863

## Thermal Transfer Polyester Label Material

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### Product Data Sheet

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Updated : May 2000

Supersedes : June 1999

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

|                   |                                                                                                            |
|-------------------|------------------------------------------------------------------------------------------------------------|
| <b>Facestock</b>  | 51 micron (2.0 thou) Bright Silver Polyester                                                               |
| <b>Adhesive</b>   | 20 micron (0.8 thou) #300 Acrylic                                                                          |
| <b>Liner</b>      | 81 micron (3.2 thou), 90g/m <sup>2</sup> (#55) Densified Kraft                                             |
| <b>Shelf Life</b> | 24 months from date of manufacture of product when properly stored between 22°C and 50% relative humidity. |

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**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.
- #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.
- 90g/m<sup>2</sup> (55#) densified kraft liner assures consistent die cutting.
- 3M™ Label Material 7863 is UL recognised (File MH16411) and CSA accepted (File 99316). See the UL and CSA listings for details.

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**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**  
Not for specification purposes

|                        |                                                                                                                 |              |                 |              |
|------------------------|-----------------------------------------------------------------------------------------------------------------|--------------|-----------------|--------------|
| <b>Adhesion</b>        | 180° peel test procedure is ASTM D 3330<br>90° peel test procedure is ASTM D 3330 modified for the angle change |              |                 |              |
| <b>Surface</b>         | <b>Initial<br/>(10 Minute Dwell/RT)</b>                                                                         |              |                 |              |
|                        | <b>180° Peel</b>                                                                                                |              | <b>90° Peel</b> |              |
|                        | <b>N/10mm</b>                                                                                                   | <b>Oz/In</b> | <b>N/10mm</b>   | <b>Oz/In</b> |
| <b>Stainless Steel</b> | 6.1                                                                                                             | 56           | 4.6             | 42           |
| <b>Polycarbonate</b>   | 6.7                                                                                                             | 59           | 4.8             | 44           |
| <b>Polypropylene</b>   | 5.8                                                                                                             | 53           | 4.2             | 38           |
| <b>Glass</b>           | 6.6                                                                                                             | 60           | 4.6             | 42           |
| <b>HD Polyethylene</b> | 3.8                                                                                                             | 35           | 3.1             | 28           |
| <b>LD Polyethylene</b> | 3.5                                                                                                             | 32           | 2.7             | 25           |

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

|                        |                                           |              |                 |              |
|------------------------|-------------------------------------------|--------------|-----------------|--------------|
| <b>Surface</b>         | <b>Conditioned for 3 Days<br/>at 49°C</b> |              |                 |              |
|                        | <b>180° Peel</b>                          |              | <b>90° Peel</b> |              |
|                        | <b>N/10mm</b>                             | <b>Oz/In</b> | <b>N/10mm</b>   | <b>Oz/In</b> |
| <b>Stainless Steel</b> | 7.7                                       | 70           | 5.5             | 50           |
| <b>Polycarbonate</b>   | 3.3                                       | 30           | 1.9             | 17           |
| <b>Polypropylene</b>   | 5.9                                       | 54           | 4.6             | 42           |
| <b>Glass</b>           | 7.7                                       | 70           | 5.5             | 50           |
| <b>HD Polyethylene</b> | 4.4                                       | 40           | 3.2             | 29           |
| <b>LD Polyethylene</b> | 1.0                                       | 9            | 1.1             | 10           |

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

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**Performance  
Characteristics Contd...**

Not for specification purposes

| <b>Liner Release</b> | 180° 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             |

| <b>Environmental Performance</b>   | 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. |              |                   |                         |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|-------------------------|
| <b>Chemical Resistance</b>         | <b>Adhesion to Stainless Steel</b>                                                                                                                                                                                                                                                                                                   |              | <b>Appearance</b> | <b>Edge Penetration</b> |
| <b>Chemical</b>                    | <b>N/10mm</b>                                                                                                                                                                                                                                                                                                                        | <b>Oz/In</b> | <b>Visual</b>     | <b>Millimetres</b>      |
| Isopropyl Alcohol                  | 6.6                                                                                                                                                                                                                                                                                                                                  | 60           | No change         | 0.8                     |
| Detergent (1% Alconox®*)           | 7.0                                                                                                                                                                                                                                                                                                                                  | 64           | No change         | 0                       |
| Engine Oil (10W30) @ 250°F (121°C) | 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®* Cleaning solution            | 7.0                                                                                                                                                                                                                                                                                                                                  | 64           | No change         | 0                       |
| Toluene                            | 3.6                                                                                                                                                                                                                                                                                                                                  | 33           | No change         | 6.5                     |
| Acetone                            | 5.1                                                                                                                                                                                                                                                                                                                                  | 47           | No change         | 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                       |

| <b>Temperature Resistance</b> | 149°C for 24 hours:                         | no significant visual change<br>0.75% MD shrinkage<br>0.9% CD shrinkage |
|-------------------------------|---------------------------------------------|-------------------------------------------------------------------------|
|                               | -40°C for 3 days:                           | no significant visual change                                            |
| <b>Humidity Resistance</b>    | 24 hours at 38°C and 100% relative humidity | No significant changes in appearance or adhesion                        |

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| <b>Accelerated Ageing</b><br>ASTM D3611 : 96 hours at 65°C & 80% relative humidity |                        |               |                         |
|------------------------------------------------------------------------------------|------------------------|---------------|-------------------------|
|                                                                                    | <b>Rate of Removal</b> | <b>N/10mm</b> | <b>Grams/25mm Width</b> |
| 180° Peel Removal of Liner from Facestock                                          | 2.3 m / minute         | 0.062         | 16                      |
|                                                                                    | <b>Rate of Removal</b> | <b>N/10mm</b> | <b>Oz / Inch Width</b>  |
| 180° Peel Adhesion from Stainless Steel                                            | 305 mm / minute        | 5.9           | 54                      |

## 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.

## 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-4099.1

limak™: SH-36; 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

Markem™: 716 (suitable for indoor use only)

Mid City Columbia™: CGL-80; CGL-80HE

NCR™: Matrix Resin; Matrix ; 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, 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**

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