



# Polyester Overlaminating Films

## 7744 • 7744FL

Technical Data

August, 2007

**Product Description** 3M™ Polyester Overlaminating Films 7744 and 7744FL utilize a matte clear polyester that is recommended for optimum durability and thermal transfer printability. 3M™ Adhesive 400 offers excellent low temperature performance and long term aging for resistance to yellowing in outdoor applications.

| Construction | Product Number                       | Facestock   | Adhesive                         | Liner                                       |
|--------------|--------------------------------------|---|----------------------------------|---|
|              | <b>3M overlaminating film 7744</b>   | .0013 in. Matte Clear Polyester TT TC (33 micron) | #400 Acrylic 0.8 mil (20 micron) | 43# Densified Kraft 2.5 mil (64 micron)     |
|              | <b>3M overlaminating film 7744FL</b> | .0013 in. Matte Clear Polyester TT TC (33 micron) | #400 Acrylic 0.8 mil (20 micron) | .0015 in. Clear Polyester Liner (38 micron) |

(Calipers are nominal values.)

- Features**
- 43# bleached kraft liner helps improve application accuracy due to excellent liner release consistency.
  - High-bond strength resists edge lifting.
  - Superior abrasion, humidity and solvent resistance.
  - Premium overlaminate performance for extreme environmental conditions.
  - UL recognized (File MH16411).
  - CSA Accepted (File 99316) for overlamination of both polyester and vinyl labelstocks.

- Application Ideas**
- Barcode labels and rating plates.
  - Property identification and asset labeling.
  - Warning, instruction, and service labels for durable goods.
  - Nameplates for durable goods.
  - Protective overlaminate for label and nameplate graphics can be used on appliances, industrial equipment, tools, etc.
  - Printable overlaminate for variable information.

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## 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.**

|  |   |   |
|--|---|---|
| <b>Adhesive Coat Weight</b>                              | 0.81 to 1.35 g/100 in. <sup>2</sup>   | TM-2279                                 |
| <b>Release Range</b><br>3M™ Film 7744<br>3M™ Film 7744FL | 8 to 55 g/2 in.   | TLMI Method, 180° removal, 300 in./min. |
|  | 5 to 55 g/2 in.   | TLMI Method, 180° removal, 300 in./min. |
| <b>Service Temperature</b>                               | -40°F to 250°F (-40°C to 121°C)   |   |
| <b>Minimum Application Temperature</b>                   | 10°F (-12°C)  |   |
| <b>Convertability</b>                                    | Low temperature, high clarity 3M™ Acrylic Adhesive 400 is specifically designed to be compatible with a variety of print methods and overlaminate applications. When converting labels for thermal transfer applications, care should be taken with regard to proper roll tensions, handling and storage conditions. Please refer to 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, 12 in./minute Dwell (ASTM D3330, 305 mm/min.), 1 in. wide sample, at 72°F (22°C) and 50% relative humidity. Values: oz./inch width.

| Surface         | Initial<br>(10 Minute Dwell/RT) |          |          |          | Conditioned for 3 Days at<br>Room Temperature 72°F (22°C) |          |          |          |
|-----------------|---------------------------------|----------|----------|----------|---|----------|----------|----------|
|                 | 180° Peel                       |          | 90° Peel |          | 180° Peel   |          | 90° Peel |          |
|                 | Oz./In.                         | N/100 mm | Oz./In.  | N/100 mm | Oz./In.   | N/100 mm | Oz./In.  | N/100 mm |
| Stainless Steel | 29                              | 32       | 23       | 25       | 41  | 45       | 32       | 35       |
| Polycarbonate   | 33                              | 36       | 28       | 31       | 39  | 43       | 37       | 40       |
| Polypropylene   | 27                              | 30       | 19       | 21       | 29  | 32       | 26       | 28       |
| Glass           | 32                              | 35       | 24       | 26       | 40  | 44       | 40       | 44       |
| HD Polyethylene | 12                              | 13       | 8        | 9        | 14  | 15       | 12       | 13       |
| LD Polyethylene | 11                              | 12       | 9        | 10       | 14  | 15       | 17       | 19       |

| Surface         | Conditioned for 3 Days at<br>120°F (49°C) |          |          |          | Conditioned for 24 hours at 90°F<br>(32°C) at 90% Relative Humidity |          |          |          |
|-----------------|---|----------|----------|----------|---|----------|----------|----------|
|                 | 180° Peel                                 |          | 90° Peel |          | 180° Peel   |          | 90° Peel |          |
|                 | Oz./In.                                   | N/100 mm | Oz./In.  | N/100 mm | Oz./In.   | N/100 mm | Oz./In.  | N/100 mm |
| Stainless Steel | 46  | 50       | 38       | 42       | 67  | 73       | 33       | 36       |
| Polycarbonate   | 26  | 28       | 27       | 30       | 34  | 37       | 33       | 36       |
| Polypropylene   | 32  | 35       | 25       | 27       | 28  | 31       | 21       | 23       |
| Glass           | 50  | 55       | 38       | 42       | 47  | 51       | 26       | 28       |
| HD Polyethylene | 21  | 33       | 15       | 16       | 17  | 19       | 15       | 16       |
| LD Polyethylene | 5   | 5        | 7        | 8        | 10  | 11       | 17       | 19       |

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## 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 4-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 180° peel angle (ASTM D3330) at 12 inches/minute.

### Chemical Resistance:

| Chemical                           | Adhesion to Stainless Steel |          | Appearance | Edge Penetration |
|------------------------------------|-----------------------------|----------|------------|------------------|
|                                    | Oz./in.                     | N/100 mm | Visual     | Millimeters      |
| Isopropyl Alcohol                  | 39                          | 43       | No change  | 0.0              |
| Detergent (1% Alconox® Cleaner)    | 42                          | 46       | No change  | 0.0              |
| Engine Oil (10W30) @ 250°F (121°C) | 53                          | 58       | No change  | 2.0              |
| Water for 48 hours                 | 62                          | 68       | No change  | 0.0              |
| pH 4                               | 43                          | 47       | No change  | 0.0              |
| pH 10                              | 44                          | 48       | No change  | 0.0              |
| 409® Formula                       | 45                          | 49       | No change  | 0.0              |
| Toluene                            | 23                          | 25       | No change  | 7.0              |
| Acetone                            | 28                          | 31       | No change  | 5.0              |
| Brake Fluid                        | 54                          | 59       | No change  | 0.0              |
| Gasoline                           | 24                          | 26       | No change  | 6.0              |
| Diesel Fuel                        | 39                          | 43       | No change  | 1.5              |
| Mineral Spirits                    | 34                          | 37       | No change  | 3.0              |
| Hydraulic Fluid                    | 43                          | 47       | No change  | 0.0              |

### Temperature Resistance:

300°F (149°C) for 24 hours:

No significant visual change.

-60°F (-51°C) for 10 days:

No significant visual change.

### Humidity Resistance:

24 hours at 100°F (38°C) and 100% relative humidity:

No significant changes in appearance or adhesion.

## Application Techniques

For maximum bond strength, the surface should be clean and dry. A typical cleaning solvent is heptane or isopropyl alcohol. \*

For best bonding conditions, application surfaces should be at room temperature or slightly 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.

Silicone overspray/contamination of the substrate can cause poor adhesion.

**\*Note:** When using solvents, read and follow the manufacturer's precautions and directions for use.

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## 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.

### **Thermal Transfer Printing:**

#### Ink Ribbon 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; GPR

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); PaceSetter; Promark II;  
Ultra V

Pelikan: T016

Ricoh: B110A; B110C; B110CS

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:**

#### Toner and Printer Components:

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

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## Die Cutting/ Converting

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 adhesive from oozing.

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## Packaging

Finished labels should be stored in plastic bags.

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**Storage** Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.

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**Shelf Life** If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.

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**Product Use** All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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1030 Lake Road  
Medina, OH 44256-0428  
800-422-8116 • 877-722-5072 (fax)  
www.3M.com/converter



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