



# Tamper-Indicating Label Material for Thermal Transfer Printing

7866

FOD# 0095

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Technical Data

April 15, 1999

*Supersedes December 16, 1998*

Construction	Facestock	Destruct Pattern	Adhesive	Liner
	2.0 mil (50 microns) Gloss White Polyester	"VOID"	1.0 mil (25 microns) #300 "Hi-Strength" Acrylic	3.2 mil (80 microns) 55# Densified Kraft

## Features

- This tamper-indicating stock is designed to provide a "void" message in the facestock when removal is attempted.
- Durable polyester facestock is top-coated for thermal transfer printing with select resin ribbons.
- The compact format of the "void" message permits manufacture of small labels (1/2" x 1-1/4").
- #300 high-strength acrylic adhesive provides high bond to most surfaces. Compatibility must be determined.
- 55# densified kraft liner assures consistent die cutting.
- 3M 7866 material is UL recognized (File MH 16411) and CSA accepted (File 99316). See the UL and CSA listing for details.

## Application Ideas

- Non-transferable labels for automotive, appliance and electronics industries.
- Tamper-indicating labels and seals for over-the-counter drugs and other packaging applications.

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## Physical Properties

Assume all surfaces to which these label materials will be applied are contaminated – metals may be oily or dusty; plastics may be coated with mold release agents, dirt, etc. Any surface contaminant will adversely affect adhesion and the destruct message; therefore, it must be removed prior to application by wiping with a solvent. Consult the manufacturer's Material Safety Data Sheet for proper handling and storage of solvents.

### Adheres to the following clean surfaces:

Stainless Steel	Painted Metal	Nylon
ABS	Polyester	Glass
Polypropylene	HDPE	Polycarbonate

### Proper handling and storage:

**Clean Substrate:** Wet the application surface with a mild solvent such as isopropyl alcohol (rubbing alcohol) or heptane and wipe thoroughly. Dry the surface with a lint free cloth before the solvent evaporates from the surface.

**Application Pressure:** Sufficient application pressure and dwell time is required to develop adhesion to assure "void" message appears both on facstock and substrate upon removal or upon attempted removal through tampering. Higher initial bonds can be achieved through increased application pressure such as firm hand or squeegee pressure.

**Dwell Time:** 24 hours at room temperature or 72°F (22°C) before testing.

### Liner Release: 180° peel angle

<u>Rate of Removal</u>	<u>Gram/Inch</u>	<u>N/100mm</u>
90 inches/minute	25 max.	0.96

### Conformability:

Semi-rigid, suitable for flat or slightly curved surfaces.

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## Environmental Performance

**Note: The following tests are intended as a guide to product performance. Application testing is recommended using actual substrates, expected dwell times, and actual conditioning for best determination of product suitability.**

The properties defined are based on the adhesion of the label material to a stainless steel test surface.

### **Chemical Resistance:** Bond is secure when exposed to the following:

Gasoline -	1 hr. at room temperature
Auto Oil -	72 hrs. at 120°F (49°C)
Weak Alkali -	4 hrs. at room temperature
Weak Acid -	4 hrs. at room temperature
MEK -	1 hr. at room temperature
Freon™ TF -	1 hr. at room temperature
NaCl Solution -	72 hrs. at room temperature

**Water Resistance:** Withstands exposure to water at room temperature for 72 hours

**Temperature Resistance:** Withstands exposure from -40°F (-40°C) to 250°F (121°C)

**Humidity Resistance:** Withstands exposure to 90°F (32°C) and 90% RH for 168 hours

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## Shelf Life

Product retains its performance properties for at least two years from date of manufacture if properly stored at room temperature conditions of 72°F (22°C) and 50% R.H.

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**Processing**

**Incoming Label Materials:**

Every slit roll has been tested for the presence of the “void” message. The leading edge of every slit roll is tabbed with a 1-1/2" strip to simulate tampering, thereby indicating that the “void” message is functional on the leading edge of that roll.

**Thermal Transfer Printing:**

Caution should be exercised to avoid covering the surface of the label with opaque graphics to the extent that the “void” message is hidden, and the effectiveness of the label or seal is lessened.

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

\*Ink Ribbon/UL Recognized 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

ICS: ICS-CC-4099.1

Iimak™: 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, Matrix

NCR™: Matrix Resin; Matrix; PaceSetter; 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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**Processing (cont.)**

**Die-Cutting:**

The compact “void” message permits manufacture of labels as small as 1/2" x 1-1/4" (13mm x 32mm).

It is recommended that the converter test for the presence of the “void” message on every roll of labels or seals as the converter processes them, to insure the product quality and consistency. This can be done by laminating a label or seal to an untreated polyester film test surface. The label or seal should be wiped down with a squeegee, allowed to dwell 10 minutes and then removed to observe the presence and functions of the “void” message on both the facestock and the substrate. It is also recommended that the converter test each lot of labels or seals on the actual application surface to assure the function of the “void” message.

**Dispensing:**

Care should be taken not to disturb the tamper-indicating feature by pre-destructing the “void” message when manually removing the label from the liner. Slowly remove the liner from the label at a 90° angle. It is recommended that the end user test samples for each roll of labels or seals received from the converter. This should be done by laminating a representative label or seal to the specific application surface to assure its function meets expectations. This test can be run after 10 minutes dwell. However, final judgement should be based on 72 hours dwell at room temperature prior to testing.

**Application:**

The tamper-indicating mechanism (i.e. the “void” message both on the facestock and on the substrate) depends upon adequate adhesion of the label to the substrate. A sufficient bond may not develop on all surfaces due to low surface energy (e.g. Teflon™), contaminated or textured surfaces. Therefore, it is important to determine the suitability of the product in the intended application by carefully pretesting. The primary function of the products is to effect a non-transferable (non-reusable) label or seal by causing the “void” message to appear on the facestock when removal from the substrate is attempted. As a result of the primary function, a “void” message is also transferred to the substrate. This message transferred to substrate can be removed by hand rubbing or by solvent wiping.

Our tamper-indicating product line is designed to indicate tampering by destructing when an attempt is made to remove the label. Since no tamper-indicating feature is 100% tamper proof, careful consideration must be taken when designing labels and seals. When the consequences of tampering could be severe, such as injury or loss of human life or significant monetary loss, these products aren't recommended as the sole means of package or product tamper indication. In these instances, additional methods in combination with the labels should be considered so that the tamper-indicating features are commensurate with the requirements of the application.

**Scanning:**

If bar coding scanning, the suitability of the printed labels should be evaluated on the actual application substrate. On dark substrates, the label opacity may not be sufficient to provide accurate scanning, especially when using contact scanners.

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## Technical Information and Data

The technical information and data, recommendations, and other statements provided are based on tests or experience which 3M believes to be reliable, but the accuracy or completeness of such information is not guaranteed.

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## Product Use

Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which 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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**ISO 9002**

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