



Tamper-Indicating Label Material for Thermal Transfer Printing

7866

Technical Data

November, 2007

Product Description

3M™ Tamper-Indicating Label Material for Thermal Transfer Printing 7866 is a durable, high performance material that offers excellent thermal stability, moisture resistance and chemical resistance. This material utilize 3M™ Adhesive 300, which has excellent quick tack and also bonds well to a variety of surfaces including LSE plastics.

Construction

(Calipers are nominal values.)

Facestock	Destruct Pattern	Adhesive	Liner
2.0 mils (50 microns) Gloss White Polyester	“VOID”	1.0 mil (25 microns) #300 “Hi-Strength” Acrylic	3.2 mils (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").
- Adhesive provides high bond to most surfaces. Compatibility must be determined.
- 55# densified kraft liner assures consistent die cutting.
- UL recognized (File MH16411) and CSA accepted (File 99316). See the UL and CSA listings for details.

Application Ideas

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

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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.

Adhesive Coat Weight	1.08 to 1.62 g/100 in ²	TM-2279
Release Range	5 to 35 g/2 in.	TLMI Method, 180° removal, 300 in./min.
Service Temperature	-40°F to 250°F (-40°C to 121°C) See Environmental section	
Minimum Application Temperature	50°F (5°C)	
Convertability	3M™ High Strength Acrylic Adhesive 300 is designed to be compatible with a variety of print methods and end use applications. Due to the quick flowing aggressive nature of this adhesive, care should be taken when converting labels for thermal transfer applications. Please refer to the 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

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 Metals	Nylon
ABS	Polyester	Glass
Polypropylene	HDPE	Polycarbonate

Note: No specific peel values have been provided due to the “void” feature embedded in the label. The “void” feature will cause peel values to vary. Please test to determine suitability in a particular application.

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

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	Gasoline	1 hour at room temperature
	Auto Oil	72 hours at 120°F (49°C)
	Weak Alkali	4 hours at room temperature
	Weak Acid	4 hours at room temperature
	MEK	1 hour at room temperature
	Freon® TF	1 hour at room temperature
	NaCL Solution	72 hours at room temperature
Water Resistance:	Withstands exposure to water at room temperature for 72 hours.	
Temperature Resistance:	Withstands exposure from -40°F (-40) to 250°F (121°C).	
Humidity Resistance:	Withstands exposure to 90°F (32°C) and 90% RH for 168 hours.	

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Application Techniques	Determining Suitability	<p>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.</p> <p>The primary function of the products is to effect a non-transferrable (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.</p>
	Dispensing	<p>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.</p>
	Surface Preparation	<p>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.</p>
	Application Pressure	<p>Sufficient application pressure is required to develop adhesion to assure “void” message appears both on facestock 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.</p>
	Minimum Dwell Time	<p>24 hours at room temperature or 72°F (22°C) before testing.</p>
	Note:	<p>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 or seals. When the consequences of tampering could be severe, such as injury or loss of human life or significant monetary loss, these products are not recommended as the sole means of package or product tamper indication. In these instances, additional methods of combination with the labels should be considered so that the tamper-indicating features are commensurate with the requirements of the application.</p>

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Printing

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 stimulate 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 Ribbons/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

Great Ribbon: SDR

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; K815

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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Die Cutting / Converting

The compact “void” message permits manufacture of labels as small as 1/2" x 1-1/4" (13 mm x 12 mm).

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.

Packaging

Finished labels should be stored in plastic bags.

Storage

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

Shelf Life

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

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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ISO 9001:2000

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.



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Printed in U.S.A.
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