

July, 2011

3M™ Dot Matrix Printable Polyimide Label Material 7811

Product Description

3M™ Dot Matrix Printable Polyimide Label Material 7811 is a polyimide film product that offers ultra-high temperature performance. This label product utilizes 3M™ Adhesive 100, that can withstand up to 450°F (232°C) short-term heat resistance, has excellent solvent resistance, and exhibits low outgassing characteristics.



Product Features

- Matte white dot matrix topcoat for easy readability of variable information.
- Adhesive 100 will not degrade when exposed to a wide variety of harsh processing conditions.
- 50# densified kraft liner assures consistent die cutting.
- Label Material 7811 is UL recognized (File MH16411) and CSA accepted (File 99316). See the UL and CSA listings for details.

Technical Information Note

The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Typical Physical Properties

Property	Values	
Adhesive Thickness	0.051 mm	2.0 mil
Facestock	Polyimide Film and Matte White Thermal Transfer Printable Topcoat	
Adhesive	100 Acrylic	
Liner	50# Densified Kraft	
Liner Thickness	0.076 mm	3.2 mil

Facestock Thickness

Polyimide Film: 0.051 mm
 Matte White Thermal Transfer Printable Topcoat: 0.025 mm

Facestock Thickness

Polyimide Film: 2.0 mil
 Matte White Thermal Transfer Printable Topcoat: 1.0 mil

Note

Calipers are nominal values

Typical Performance Characteristics

180° Peel Adhesion		Dwell/Cure Time	Substrate
3.5 N/cm	32 oz/in	10 min @ Room Temperature	Stainless Steel
3.7 N/cm	34 oz/in	10 min @ Room Temperature	Polycarbonate (PC)
4.8 N/cm	44 oz/in	10 min @ Room Temperature	Epoxy PC Board
5.8 N/cm	53 oz/in	72 hr @ Room Temperature	Stainless Steel
6.3 N/cm	58 oz/in	72 hr @ Room Temperature	Polycarbonate (PC)
6.8 N/cm	62 oz/in	72 hr @ Room Temperature	Epoxy PC Board
7.2 N/cm	66 oz/in	72 hr @ 120°F(49°C)	Stainless Steel
6.1 N/cm	56 oz/in	72 hr @ 120°F(49°C)	Polycarbonate (PC)
7.3 N/cm	67 oz/in	72 hr @ 120°F(49°C)	Epoxy PC Board
7.0 N/cm	64 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Stainless Steel
6.8 N/cm	62 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Polycarbonate (PC)

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Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Substrate
4.8 N/cm	44 oz/in	24 hr @ 90°F(32°C) at 90% Relative Humidity	Epoxy PC Board

Property: 180° Peel Adhesion
Method: ASTM D3330

180° Liner Release		Test Condition
0.57 N/cm width	150 g/in width	90 in/min
0.42 N/cm width	111 g/in width	300 in/min

Property: 180° Liner Release

Typical Environmental Performance**Chemical and Environmental Exposure**

The properties defined are based on four 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 D 3330) at 12 inches/minute.

Chemical	Adhesion to Stainless Steel		Appearance	Edge Penetration
	Oz./in.	N/100 mm	Visual	Millimeters
Isopropyl Alcohol	47	51	No change	0
Detergent 1% Alconox® Cleaner	53	58	No change	0
Engine Oil (10W30) @ 250°F (121°C)	96	105	No change	0
Water for 48 hours	54	59	No change	0
pH 4	53	58	No change	0
pH 10	50	55	No change	0
409® Formula	51	56	No change	0
Toluene	25	27	No change	0
Acetone	13	14	No change	0
Brake Fluid	53	58	No change	2
Gasoline	39	43	No change	1
Diesel Fuel	49	54	No change	0
Mineral Spirits	47	51	No change	0
Hydraulic Fluid	49	54	No change	0

Humidity Resistance

24 hours at 100°F (38°C) and 100% relative humidity: no significant change in appearance or adhesion

Temperature Resistance

530°F (277°C) for 30 seconds: no significant visual change

500°F (260°C) for 7 minutes: slight browning

-40°F (-40°C) for 24 hours: no significant visual change

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Printed Label Performance

Samples were printed with a Mid City Columbia Inc. CGL-79™ dot matrix ribbon. Printed labels were exposed to the listed conditions, which are representative of PCB assembly conditions. After chemical exposure, labels were rinsed with tap water, dried and examined.

Condition	Visual Appearance
530°F, 30 sec.	OK
500°F, 7 min.	Slight browning
IPA 100%, RT 2 min.	OK
IPA 75%, 115°F, 15 min.	OK
Deionized Water, 140°F, 5 min.	OK
Alconox® 10%, 135°F, 2 min.	OK
D-Limonene RT, 2 min.	OK
Monoethanolamine, 135°F, 2 min.	OK
BIOACT® EC-7R, 77°F, 10 min.	OK
BIOACT® EC-15, 77°F, 10 min.	OK
Wave Solder	OK

Processing

Printing:
Facestock is topcoated for dot matrix printing. Because a firm topcoat is needed for high temperature resistance, the print is susceptible to smudging. After printing the 3M™ Dot Matrix Printable Polyimide Label Material 7811, avoid hand contact with the printed surface. For best results, use gloves for hand application.

The following dot matrix ribbon is recommended for use with this material.
• GLC-79™ from Mid-City Columbia Inc., 800-462-2236 or 800-996-4646.
Call 3M Customer Service at 1-800-223-7474 for additional information.

Die Cutting:
Rotary die cutting is recommended.

Dispensing:
Hand dispensing is recommended.

Packaging:
Finished labels should be stored in plastic bags.

Handling/Application Information

Application Ideas

- Printed circuit board tracking labels that see the following conditions:
 - Solder reflow;
 - Top and/or bottom side wave solder;
 - Most cleaning processes and chemicals;
- Labeling on parts exposed to high temperatures.

Application Techniques

For maximum bond strength, the surface should be clean and dry. Typical cleaning solvents are heptane and isopropyl alcohol.*
For best bonding conditions, application surface should be at room temperature or higher. Low temperature surfaces, below 50°F (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.
*When using solvents, read and follow the manufacturer's precautions and directions for use.

Storage and Shelf Life

Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.
If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.

Industry Specifications

UL Recognized (File MH16411)
CSA Accepted (File 99316)

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References

1. Safety Data Sheet

Url: https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7811

ISO Statement

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

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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