



Aluminum Foil Label Materials

7800 • 7801 • 7940 • 7942

Technical Data

January, 2012

Product Description

3M™ Aluminum Foil Label Materials are durable, thin gauge, 1145 H19 aluminum designed to meet a wide range of difficult nameplate application requirements. 3M™ Aluminum Foil Label Materials 7800, 7801, 7940 and 7942 utilize 3M™ Adhesive 320 which offers excellent adhesion to a variety of surfaces including high surface energy (HSE) and low surface energy (LSE) plastics.

Construction

(Calipers are nominal values.)

Product	Facestock	Adhesive	Liner
3M Label Material 7800	.002 in. Matte Silver Aluminum Foil Vinyl TC (51 microns)	320 High Tenacity Acrylic 1.7 mils (43 microns)	60# Densified Kraft 3.3 mils (84 microns)
3M Label Material 7801	.002 in. Bright Silver Aluminum Foil Vinyl TC (51 microns)	320 High Tenacity Acrylic 1.7 mils (43 microns)	60# Densified Kraft 3.3 mils (84 microns)
3M Label Material 7940	.002 in. Matte Silver Aluminum Foil Vinyl TC (51 microns)	320 High Tenacity Acrylic 1.7 mils (43 microns)	90# Polyctd. 6.7 mils bleached kraft sheet polyethylene coated on two sides. (170 microns)
3M Label Material 7942	.002 in. Bright Silver Aluminum Foil Vinyl TC (51 microns)	320 High Tenacity Acrylic 1.7 mils (43 microns)	90# Polyctd. 6.7 mils bleached kraft sheet polyethylene coated on two sides. (170 microns)

Features

- The liner for 3M label materials 7800 and 7801 is designed for rotary, roll to roll applications.
- The liner for 3M label materials 7940 and 7942 provides easy sheet processing and is designed for layflat. The backside of the liner is not printable.
- UL Recognized (File MH11410) and CSA Accepted (File 099316).

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Application Ideas

- Inexpensive metal nameplate alternative for appliance, electronics, automotive and aircraft industries.
- Durable OEM decals.
- Serialized rating plates where extremely high bond and long term stability are needed.
- Embossed seals.

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.

Liner Release	10 to 100g/in	TLMI Method 180° Peel, removal, 90 in./min., 1" width
Service Temperature 3M™ Label Materials 7800, 7801, 7940 and 7942	-40°F to 250°F (-40°C to 121°C)	
Minimum Application Temperature	50°F (10°C)	
Convertability	3M™ High Tenacity Acrylic Adhesive 320 is specifically designed to be compatible with flexographic and thermal transfer technologies. Its aggressive tack properties, while desirable for the end use application, may require extra care during processing. 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 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.

Adhesion: Peel test procedure is ASTM D-3330 (modified)

3M™ Aluminum Foil Label Material	Initial (10 Minute Dwell/RT)		Conditioned for 3 Days at Room Temperature 72°F (22°C)	
	90° Peel		90° Peel	
Surface	oz/in	N/100 mm	oz/in	N/100 mm
Stainless Steel	58	63	69	75
ABS	71	78	73	80
Polypropylene	39	43	53	58
Glass	63	69	73	80
Aluminum	51	56	62	68

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Environmental Performance

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Samples were applied to aluminum panels and allowed to dwell for 24 hours prior to exposures.

Liquid	Dwell Time/Exposure Condition	Results
Isopropyl Alcohol @ Room Temperature	4 hours Long term (days)	No change Not recommended
Isopropyl Alcohol @ Room Temperature	3 days	4 mm edge penetration
Engine Oil @ Room Temperature	3 days	No change
Weak Acid (pH4) @ Room Temperature	3 days	No change
Weak Base (pH10) @ Room Temperature	3 days	No change
Water @ Room Temperature	3 days	No change
Acetone, gasoline and mineral spirits	4 hours Long term (days)	1-3 mm edge penetration Not recommended

Temperature Resistance:

100°F (38°C) for 1 day: No change
300°F (149°C) for 1 day: Some yellowing of top-coat
-40°F (-40°C) for 1 day: No change

Humidity Resistance:

3 days at 90°F (32°C) and 90% relative humidity: No change

Application Techniques

- While the aluminum foil has excellent abrasion resistance, the use of overlaminating films can enhance performance.
- Foil nameplates should be as flat as possible before application. Any curl in the plate prior to application will remain in the metal memory and could lead to lifting at the edges. It is desirable to remove the liner from the nameplate by peeling it back at 180° and allowing the nameplate to project in a flat plane.
- For maximum bond strength, surface should be thoroughly clean and dry. A typical cleaning solvent is heptane or isopropyl alcohol. **Note:** Consult the manufacturer's MSDS for proper handling and storage of solvents. 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 are achieved through increased rubdown pressure.

Printing

All versions of 3M™ Aluminum Foil Label Materials are equipped, print-ready, with a vinyl topcoating. This topcoating is printable with conventional or UV inks using flexographic, letterpress, or screen printing processes. It is also capable of embossing with dot matrix impact printers. Whenever printing for the first time, with a different ink system or on a new machine, we strongly recommend carrying out proofing trials to validate ink adhesion and durability prior to a full production run.

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Die Cutting / Converting

Die Cutting:

3M™ Aluminum Foil Label Materials 7800 and 7801: Rotary

3M™ Aluminum Foil Label Materials 7940 and 7942: Flatbed, matched metal dies,
steel rule

Dispensing:

The liners for 3M™ Aluminum Foil Label Materials are designed for manual or semi-automatic. Be sure to properly test the materials in the particular process to determine suitability. Note that when manually dispensing, pull the liner away from the face to avoid bending the foil face into a permanent shape.

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.

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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ISO 9001:2008

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2008 standards.



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