Technical Data Sheet

3M™ Aluminum Foil Label Material 7940

Product Details

Regulatory Info/SDS

Product Description

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

Product Features

• The liner for 3M label material 7940 provides sheet processing and is designed for layflat. The backside of the liner is not printable.
• UL Recognized file MH11410

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

Attribute Name	Value
Adhesive Type	320 High Tenacity Acrylic
Facestock	Matte Silver Aluminum Foil Vinyl TC

Attribute Name	Value
Adhesive Thickness	0.043 mm (1.7 mil)
Facestock Thickness	0.051 mm (2 mil)
Liner	90# Polyctd. bleached kraft sheet polyethylene coated on two sides
Liner Thickness	0.17 mm (6.7 mil)

Attribute Name	Value
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 Performance Characteristics

90° Peel Adhesion

Temperature: 23 °C (73 °F)
Test Method: ASTM D3330

Dwell Time	Substrate	Value
10 min	ABS	7.8 N/cm (71 oz/in) [1]
10 min	Aluminum	5.6 N/cm (51 oz/in) [1]
10 min	Glass	6.9 oz/in [1]
10 min	Polypropylene (PP)	4.3 N/cm (39 oz/in) [1]
10 min	Stainless Steel	6.3 N/cm (58 oz/in) [1]
72 h	ABS	8.0 N/cm (73 oz/in) [1]
72 h	Aluminum	6.8 N/cm (62 oz/in) [1]
72 h	Glass	8.0 N/cm (73 oz/in) [1]
72 h	Polypropylene (PP)	5.8 N/cm (53 oz/in) [1]
72 h	Stainless Steel	69 N/cm (7.5 oz/in) [1]

[1] 304 mm/min (12 in/min)

Attribute Name	Value
Minimum Application Temperature	10 °C (50 °F)
Long Term Temperature Resistance	121 °C (250 °F) [1]
Minimum Long Term Temperature Resistance	-40 °C (-40 °F) [1]

[1] Long Term (day, weeks)

Attribute Name	Value
Note	Calipers are nominal values

Typical Environmental Characteristics

Chemical and Environmental Exposure

Liquid Dwell Time/Exposure Condition Results
Isopropyl Alcohol @ Room Temperature 4 hours No change
Long term (days) 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 1-3 mm edge penetration
Long term (days) Not recommended

Humidity Resistance

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

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

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.

Converting

Die Cutting:
3M™ Aluminum Foil Label Materials 7940 : 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.

Handling/Application Information

Application Examples

• 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.

Application Techniques

• While the aluminum foil has 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.

Industry Specifications

UL Recognized, File PGGU2.MH11410, Marking & Labeling System Materials - Component, ANSI/UL 969

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. For best performance, use this product within 24 months from date of manufacture.

Information

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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