Technical Data Sheet

3M™ Aluminum Foil Label Material 7940

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 excellent 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 easy 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

Property	Values	Additional Information
Adhesive Type	320 High Tenacity Acrylic	
Liner	90# Polyctd. bleached kraft sheet polyethylene coated on two sides	
Liner Thickness	0.17 mm	
Facestock	Matte Silver Aluminum Foil Vinyl TC	
Facestock Thickness	0.051 mm	
Adhesive Thickness	1.7 mil	
Adhesive Thickness	0.043 mm	
Facestock Thickness	2 mil	

Liner Thickness	6.7 mil
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

Property	Values	Additional Information
90° Peel Adhesion Aluminum	6.8 N/cm	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Aluminum	62 oz/in	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Polypropylene (PP)	5.8 N/cm	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Polypropylene (PP)
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	7.8 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: ABS

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	71 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: ABS

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	5.6 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	51 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Stainless Steel	69 oz/in	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Stainless Steel
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion ABS	8 N/cm	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C

Temp F: 72F
Environmental Condition: 50%RH
Substrate: ABS
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Stainless Steel	7.5 N/cm	View

Notes: 12 in/min (300 mm/min) ASTM D3330 72 hour dwell on Stainless Steel at 23°C (72°F) and 50% RH Backing: 2 mil Polyester

90° Peel Adhesion Glass	8 N/cm	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Glass
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Glass	73 oz/in	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Glass
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Polypropylene (PP)	53 oz/in	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Polypropylene (PP)
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion ABS	73 oz/in	View

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: ABS
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	6.3 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Stainless Steel

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	58 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Stainless Steel

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	4.3 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Polypropylene (PP)

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	39 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Polypropylene (PP)

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	6.9 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Glass

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	63 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 10.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Glass

Notes: 12 in/min (300 mm/min)

Long Term Temp C	121 °C	View
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-40 °C	View
Test Condition: Long Term (day, weeks)		
Long Term Temp F	250 °F	View
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-40 °F	View
Test Condition: Long Term (day, weeks)		
Minimum Application Temperature	10 °C	
Minimum Application Temperature	50 °F	
Note	Calipers are nominal values	

Typical Environmental Performance

Property	Values	Additional Information
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.

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 24 months from date of manufacture.

Industry Specifications

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

Bottom Matter

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Trademarks

3M is a trademark of 3M Company.

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 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.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b5005329185/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7940

Family Group

Link Tags:

7940

Products	Adhesive Type	Liner	Facestock	Facestock Thickness	Adhesive Thickness	Long Term Temp C	Long Term Temp F
7940	320 High Tenacity Acrylic	90# Polyctd. bleached kraft sheet polyethylene coated on two sides	Matte Silver Aluminum Foil Vinyl TC	0.051 mm	0.043 mm	121 °C	250 °F

ISO Statement

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

Information

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