



Aluminum Foil Identification Material

7940 • 7941 • 7942

0312

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Technical Data

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Features

- 3M Aluminum Foil Identification Materials are a unique group of products designed to meet a wide range of difficult nameplate application requirements.
- Ink receptive vinyl top-coating.
- Full hard alloy (1145 H19) aluminum foil facestock.
- Excellent adhesion to a wide range of surfaces: For textured high energy surfaces use 3M 7941 label materials. For low surface energy plastics use 3M 7940 or 7942 label materials.
- 90# Polycoated kraft liner for screen and offset printing.
- UL Recognized (File MH-11410).
- CSA Recognized.

Typical Applications

- Inexpensive metal nameplate alternative for the appliance, electronics, automotive, and aircraft industries.
- Durable OEM decals requiring high temperature resistance of -40°F (-40°C) to 300°F (150°C).
- Serialized rating plates where extremely high bond and long term stability are needed.
- Embossed seals.

Construction

Product	Facestock	Adhesive	Liner
7940	2.0 mils (50 microns) Matte silver aluminum foil	1.7 mils (42.5 microns) #320 High-tenacity acrylic	6.7 mils (167.5 microns) 90# Lay-flat polycoated kraft
7941	2.0 mils (50 microns) Matte silver aluminum foil	3.5 mils (85 microns) #200 High-performance acrylic	6.7 mils (167.5 microns) 90# Lay-flat polycoated kraft
7942	2.0 mils (50 microns) Bright silver aluminum foil	1.7 mils (42.5 microns) #320 High-tenacity acrylic	6.7 mils (167.5 microns) 90# Lay-flat polycoated kraft

Typical Physical Properties

Note: The following technical information should not be used for specification purposes. These are typical values not minimum values. Contact your 3M representative for specification advice.

Adhesion: 90° Peel, 12"/min. (305 mm/min), 1" wide sample. (ASTM D-3330) (modified)

	Product	10 Minutes Room Temperature		72 Hours Room Temperature	
		oz./in.	N/100 mm	oz./in.	N/100 mm
Stainless Steel	7940	70	77	77	84
	7941	60	66	112	123
	7942	70	77	77	84
ABS	7940	75	82	76	83
	7941	85	93	95	104
	7942	75	82	76	83

	Product	10 Minutes Room Temperature		72 Hours Room Temperature	
		oz./in.	N/100 mm	oz./in.	N/100 mm
Polypropylene	7940	27	30	43	47
	7941	10	11	12	13
	7942	27	30	43	47
Glass	7940	74	81	82	90
	7941	89	97	108	118
	7942	74	81	82	90
Aluminum	7940	57	62	70	77
	7941	81	89	115	126
	7942	57	62	70	77

Liner Release:	90 inch/minute speed 180° Removal Gram/Inch Width
1" wide sample	10 - 40

Environmental Performance

The properties defined are based on the attachment of 2" x 2" unprinted samples to aluminum weathering panels. For fluid resistance tests, panels are immersed for 4 hours and 3 days at room temperature. Labels were evaluated for 180° peel adhesion and edge penetration one hour after removal from test liquid.

- Temperature Resistance – Only slight yellowing of topcoating after three days at 300°F (150°C). Adhesive bond was secure.
- Humidity Resistance – No change after three days at 90°F (32°C) and 90% relative humidity.
- Water Resistance – No change after three day immersion at room temperature. Zero edge penetration.
- Motor Oil Resistance – No change after 3 day immersion in 10W30 motor oil at room temperature. Zero edge penetration.

Environmental Performance cont.

- Weak Acid Resistance –
No change after 3 day immersion in pH 4 (weak acid) solution at room temperature. Zero edge penetration.
- Weak Base Resistance –
No change after 3 day immersion in pH 10 (weak base) solution at room temperature. Zero edge penetration.
- IPA Resistance –
No change after four hour immersion in isopropyl alcohol at room temperature. Edge penetration of 4 mm after 3 day immersion.
- Miscellaneous –
Exposure to acetone, gasoline and mineral spirits is not recommended.

Shelf Life

Product retains its performance and properties for at least two years from date of manufacture if properly stored at room temperature conditions of 72°F (22°C) and 50% relative humidity.

Processing

- Printing –
Screen printing with conventional or UV inks. Dot matrix impact printing with wet-ink/fabric ribbon from:

Mid City Columbia	CGL-79
O.S. Eaton Corp.	Black172B
Herbert DeHinton	Ranger 288

Fabric ribbons are preferred over film ribbons. However, film ribbons have successfully been used on 3M label materials with the addition of a matte clear coat in the area to be printed. An evaluation of the compatibility of the ribbon with the selected clear coat is highly recommended.

- Die-Cutting –
Flat bed, matched metal dies, steel rule.

Special Considerations

- While the aluminum foil has excellent abrasion resistance, overlaminating films will enhance this resistance.
- For maximum bond strength, surface should be clean and dry. A typical cleaning solvent is heptane or isopropyl alcohol. Consult the manufacturer's Material Safety Data Sheet 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), cause the adhesive to become so firm that it will not develop maximum contact with the substrate.
- Higher initial bonds are achieved through increased rub down pressure. Use a firm rubber roller with maximum hand pressure for best results.
- 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° allowing the nameplate to project in a flat plane.

Technical Data All physical properties, statements, and recommendations are either based on tests we believe to be reliable or our experience, but they are not guaranteed. 3M recommends each user determine the suitability of the masking paper, film or tape for the intended use.

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Industrial Tape and Specialties Division

3M Center, Building 220-7W-03
St. Paul, MN 55144-1000
USA
1 800 326 3550
1 800 223 7427 Fax On Demand
e-mail: labeldiecut@mmm.com
<http://www.3M.com/labeldiecut>

3M Canada Inc.

PO Box 5757
London, Ontario
Canada N6A 4T1
519 451 2500
519 452 6262 FAX

3M do Brasil Ltda – Cepi 23050

Caixa Postal 123
Campinas – SP – Brazil
Cep. 13001-970
55 19 864 7143
55 19 864 7637 FAX

3M Puerto Rico, Inc.

Puerto Rico Industrial Park
PO Box 100
Carolina, PR 00986-0100
787 750 3000
787 750 3035 FAX

European Business Unit Industrial Tape and Specialties c/o 3M Deutschland GmbH

Carl-Schurz-StraBe 1
D-41453 Neuss
49 (0) 21 31/14 39 26
49 (0) 21 31/14 36 95 FAX

3M Mexico, S.A. de C.V.

Av. Santa Fe No. 55
Col. Santa Fe, Del. Avaro Obregón
México D.F. 01210
52 5 270 2289
52 5 270 2299 FAX

3M Asia Pacific Pte. Ltd.

9, Tagore Lane
Singapore 787472
Republic of Singapore
65 454 8611
64 456 8953 FAX