Aluminum Foil Label Material

7800 • 7801 • 7804

Technical Data **January 1, 1999**

Supersedes December 11, 1992

Features

- 3M™ Aluminum Foil Label Materials are a unique group of products that can meet a wide range of difficult nameplate application requirements.
- Ink receptive vinyl topcoating.
- Full hard alloy (1145 H19) aluminum foil facestock.
- Excellent adhesion to a wide range of surfaces: For textured high energy surfaces use 3M 7804 label materials. For low surface energy plastics use 3M 7800 or 7801 label materials.
- UL Recognized (File MH-11410).
- CSA Recognized.

Application Ideas

- 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
7800	2.0 mils (50 microns) Matte silver aluminum foil	1.7 mils (42.5 microns) #320 High-tenacity acrylic	3.3 mils (84 microns) 60# Densified Kraft
7804	2.0 mils (50 microns) Matte silver aluminum foil	3.5 mils (85 microns) #200 High-performance acrylic	3.3 mils (84 microns) 60# Densified Kraft
7801	2.0 mils (50 microns) Bright silver aluminum foil	1.7 mils (42.5 microns) #320 High-tenacity acrylic	3.3 mils (84 microns) 60# Densified Kraft

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.

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

		10 Minutes Room Temperature		72 Hours Room Temperature	
	Product	oz./in.	N/100 mm	oz./in.	N/100 mm
Stainless Steel	7800	58	63	69	75
	7801	58	63	69	75
	7804	60	66	112	123
ABS	7800	71	78	73	80
	7801	71	78	73	80
	7804	84	92	95	104

		10 Minutes Room Temperature		72 Hours Room Temperature	
	Product	oz./in.	N/100 mm	oz./in.	N/100 mm
Polypropylene	7800	39	43	53	58
	7801	39	43	53	58
	7804	12	13	17	18
Glass	7800	63	69	73	80
	7801	63	69	73	80
	7804	89	97	108	118
Aluminum	7800	51	56	62	68
	7801	51	56	62	68
	7804	81	89	115	126

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

Environmental Performance

Note: The following tests are intended to be a guide to product performance. Application testing is recommended using actual substrates, expected dwell times, and actual conditioning for determination of product suitability.

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 (continued)

- 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

Two years from date of manufacture if properly stored at room temperature conditions of 72˚F (22˚C) and 50% relative humidity.

Processing

- Printing –
  Flexography, letterpress, and screen printing with conventional or UV inks.
- Die-Cutting –
  Flat bed, matched metal dies, steel rule, rotary dies.
- Dispensing –
  Manual or semi-automatic. When removing facestock from liner, keep facestock flat (do not bend). Pull liner away from the facestock.

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.*

  * Note: Follow the manufacturer's precautions and directions for use when using 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 can be 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.

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Technical Information and Data

The technical information and data, recommendations, and other statements provided are based on tests or experience which 3M believes to be reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which th product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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ISO 9002

This Industrial Tape and Specialties Division product was manufactured under a 3M quality system registered to ISO 9002 standards.

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