



Laser Markable Label Material

7847 • 7848

Technical Data

February, 2009

Product Description

3M™ Laser Markable Label Material 7847 and 7848 are specialty film label materials where a laser can ablate the top layer of a dual-layer facestock to create an image. The same laser can also kiss cut the label to size, maximizing flexibility for producing variable labels for durable applications.

Construction

(Calipers are nominal values.)

Product	Facestock	Adhesive	Liner
3M label material 7847	Top Layer: 0.4 mil (10 microns) Matte black acrylate Base Layer: 2.0 mil (50 microns) Matte white acrylate	1.2 mil (30 microns) #350 high-holding acrylic	3.2 mil (80 microns) Densified Kraft
3M label material 7848	Top Layer: 0.4 mil (10 microns) Matte silver acrylate Base Layer: 2.0 mil (50 microns) Matte black acrylate	1.2 mil (30 microns) #350 high-holding acrylic	3.2 mil (80 microns) Densified Kraft

Features

- Cast modified acrylate facestock offers long-term durability and excellent abrasion, temperature, chemical and environmental resistance
- High-resolution and high-contrast images markable with standard Nd-Yag lasers for smaller barcodes, 2-D symbologies and fine point text.
- Excellent convertability (“kiss cutting”) of acrylate facestock on densified kraft liner.
- Matte surface provides good printability resulting in excellent bar code readability.
- #350 modified acrylic adhesive provides reliable, permanent adhesion to LSE plastics, oily metals, powder coatings and textured surfaces.
- Brittle facestock material provides destructibility to meet security labeling requirements.
- No corrosive emissions during the laser marking process.
- UL Recognized Component under file MH11410.
- CSA Recognized Component under file 99316.

Application Ideas

- Durable goods marking
- Under hood labels
- Barcode labels
- Process labeling in-plant
- Asset labels
- Security labels
- Information labels with 2-D symbologies

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7847 • 7848

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Minimum Application Temperature:	39°F (4°C)
Weight per yd² (film and adhesive):	75-84 g/yd ² (90-100 g/m ²)
Elongation at Break:	ca. 13%
Tensile Strength:	Min. 3,630 psi (25/Nmm ²) [elongation at break and tensile strength have been tested according to DIN 53455/ISO 527, 300mm/min.]

Environmental Performance

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.

Temperature Resistance: Resistant up to 392°F (200°C)
 (when applied to aluminum surfaces) 530°F (275°C) for 1 min.
 482°F (250°C) for 5 min.
 440°F (225°C) for 60 min.

Dimensional Stability: No changes
 Low temperature resistance
 without stress: -76°F (-60°C): No change
 with stress*: -22°F (-30°C): No change
 *Tested according to Gardner Impact Test.

Adhesive Performance/Bond Strength:

Substrate	Oz/inch	N/inch.
Stainless Steel	108	30
Aluminum	108	30
Polypropylene	72	20
Polyethylene	64	18
Polycarbonate	90	25
ABS	101	28
PVC	108	30

Measured according to DIN 30646, part 1 (300 mm/min., at 180° angle, film width: 25.4 mm). Adhesive performance for each case can depend on the texture of the surface. The above adhesive values are average values. They are not appropriate for specifications.

Weather Resistance: Acceleration test in the Xenon device > 2000 hours according to (thermal cycling) DIN 53387 (equivalent to 4-5 years outdoor exposure to weather): No change.

Resistance to Environmental Conditions:

(according to automotive specification DCC 654A-(Europe), applied to aluminum): No change.

72 hours	176°F (80°C)
24 hours	100°F (38°C) 98% rh
7 hours	-22°F (-30°C) 98% rh
17 hours	100°F (38°C) 98% rh
7 hours	176°F (80°C)
24 hours	100°F (38°C) 98% rh
17 hours	-22°F (-30°C)

3M™ Laser Markable Label Material

7847 • 7848

Environmental Performance (continued)

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.

Resistance to Chemical Immersion:

Substance	Exposure	Time Results
Distilled water, 149°F (65°C)	390 hours	No change
SAE 20 motor oil, 77°F (25°C)	250 hours	No change
Sodium hydroxide solution	200 hours	No change
Sulphuric acid	300 hours	No change
Gasoline (unleaded)	1 hour	No change
95% rh, 100°F (38°C)	250 hours	No change
Xylene	0.5 hour	No change
Isopropanol	0.5 hour	No change

Spraying with Salt Water: 168 hours/5% concentration/95°F (35°C): No change.

Resistance to Abrasion: Abrasion test Tabor/Abraser (applied to aluminum panels) CS 10 wheels, 500 grams per wheel up to 300 cycles: No change.

Processing

Laser Marking:

- 3M™ Laser Markable Label Material 7847 and 7848 are compatible with many kinds of dispenser systems and is suitable for a continuous process with minimal supervision.
- 3M recommends operating an exhaust system combined with a charcoal filter to reduce emissions during the laser operation.
- All Nd-Yag laser marking equipment on the market can ablate and “kiss cut” 3M label material 7847 and 7848.
- For optimized optical results, 3M recommends individually adjusting marking parameter, such as power, pulse rate, and speed, to your individual requirements depending on the type of labels to be produced (bar codes or characters).

Printing:

- When using press printing methods, 3M recommends pre-printing tests to check for sufficient ink adhesion.

Storage

Store at room temperature conditions in cool, dry and sun-protected rooms.

Shelf Life

If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.

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7847 • 7848

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.

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ISO 9001:2000

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