Laser Markable Label Material

7847

Technical Data **January 1, 1999**

Description

3M™ label material 7847 is a specialty film label material that can be imaged and "kiss cut" by a laser beam. The top layer of 3M label material 7847 is engineered to be ablated by a laser beam, to create an image. A laser beam can both ablate and cut the label material thus leading to maximum flexibility for producing variable label formats.

Construction

Facestock	Adhesive	Liner
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

Features

- Cast modified acrylate facestock offers long-term durability and excellent temperature, chemical and environmental resistance
- Excellent convertability ("kiss cutting") of acrylate facestock on densified kraft liner.
- Matte surface provides good printability resulting in excellent bar code readability.
- Two-layer construction with engraved inscription provides long-term readability, abrasion resistance and excellent contrast of images.
- #350 modified acrylic adhesive provides reliable, permanent adhesion to LSE plastics, oily metals, powder coatings and textured surfaces.
- Destructible facestock material provides tamper evidence to meet security labeling requirements.
- No corrosive emissions during the laser marking process.
- 3M label material 7847 is a Recognized Component under file MH11410 by Underwriters Laboratories Inc.
- Cast modified acrylate facestock can achieve high resolution with standard Nd-Yag lasers for smaller barcodes, 2-D symbologies and fine point text.

Application Ideas

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

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 yd^2 (film and adhesive): 75-84g/yd^2 (90-100 g/m^2)

Elongation at break: ca. 13%

Tensile strength: Min. 3,630 psi (25N/mm^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: (when applied to aluminum surfaces)

Resistant up to 392°F (200°C)
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 : (thermal cycling)

Acceleration test in the Xenon device > 2000 hours according to 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)

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

Storage/shelf life: 2 years storage stability if stored at room temperature conditions in cool, dry and sun-protected rooms.

Processing

Laser Marking:

- 3M label material 7847 is 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.
- 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.

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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