



Laser Markable Label Stock 7847

Product Data Sheet

Updated : July 2000
Supersedes : November 1994

Product Description

ScotchMark 7847 laser markable label stock is a two layer film designed for the production of labels in laser marking facilities.

Due to a special production process the black top layer and the white base layer form a homogeneous unity.

The acrylic film is halogen-free and highly resistant to chemical substances, temperature and other environmental influences.

ScotchMark Laser markable Label stock 7847 is coated with a modified acrylic adhesive and shows good primary adhesion as well as a high final adhesion even on low energy surfaces such as polypropylene.

Depending on specific application ScotchMark Laser markable Label stock 7847 can also be used for tamper-evident identification. In most cases labels cannot be transferred without damage once they have been applied to a surface.

Physical Properties

Not for specification purposes

Construction	White base film (caliper approximately 50 µm) with black surface coating (caliper approximately 10µm).
Material	Acrylate
Adhesive	Modified (high-performance) acrylic adhesive of 350 series (caliper ca. 30µm). Permanent low-temperature adhesive.
Liner	Densified Kraft paper, caliper 80µm, weight: 94 g/m ²
Shelf Life	24 months from date of manufacture by 3M if stored at room temperature condition in cool, dry and sun protected room.

Features:

- Markable with all Nd-YAG laser marking equipment available on the market.
- High contrast of the markings (especially with BARCODES).
- Very good abrasion resistance, temperature resistance as well as resistance to chemical substances.
- No corrosive emissions during the laser marking process.
- Very good weathering resistance.
- UL-approval : File No. MH16411
- CSA-approval : File No. 99316

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Product Availability

ScotchMark Laser markable Label stock 7847 is available as endless roll material. If pre-cut labels are requested 3M will recommend several converters specialising in the production of various different formats. If no equipment for laser marking is available, 3M can name, if desired, companies which quickly and reliably do laser marking according to customer specification.

3M also names appropriate laser equipment manufacturers if in-house marking is required.

Physical Properties

Not for specification purposes

Minimum Application Temperature	+ 4°C
Weight per m² (film & adhesive)	90 - 100 g/m ²
Elongation at Break	approx. 13 %
Tensile Strength	min 25 N/25.4mm
Elongation at Break and Tensile Strength have been tested according to DIN 53455/ISO 527, 300 mm/min.	
Spraying with Salt Water	168 h / 5% concentration / 35°C - No Change

Adhesive Performance / Bond Strength

Not for specification purposes

Measured according to DIN 306-46, part 1 (jaw separation speed 300mm/min., at 180°C angle, film width: 25.4mm). Adhesive performance for the individual case can depend on the texture of the substrate surface. The above adhesive values are average values. They are not appropriate for specifications.

Substrate	N/25.4 mm
Afera Steel	30
Aluminium	30
Polypropylene	20
Polyethylene	18
Polycarbonate	25
ABS	28
PVC	30

Resistance to Environmental Conditions

(according to automotive specification DCC 654A-Europe)
 (applied to aluminium)

72 h 80°C	No Change
7 h 80°C	No Change
24 h 38°C (98% relative humidity)	No Change
24 h 38°C (98% RH)	No Change
7 h -30°C (98% relative humidity)	No Change
17 h -30°C	No Change
17 h 38°C (98% relative humidity)	No Change

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Resistance to Chemicals and Solvents

Substance	Exposure Time	Result
Distilled Water @ 65°C	390 hours	No Change
SAE 20 motor oil at 25°C	250 hours	No Change
Sodium hydroxide solution	200 hours	No Change
Sulphuric Acid (30%)	300 hours	No Change
Petrol (lead free ordinary)	1 hour	No Change
95% Relative Humidity @ 38°C	250 hours	No Change
Xylene	0.5 hours	No Change
N-Heptane	0.5 hours	No Change
Isopropanol	0.5 hours	No Change

Resistance to Abrasion

- Abrasion test Tabor/Abrader (applied to Aluminium), CS 10 wheels, 500g per wheel up to 300 cycles : No Change
- Crock Meter Test (1) 200 cycles.
 - SAE 20 motor oil at 25°C
 - Gasoline for cleaning
 - 1% Pril in H₂O
 - Percentage Isopropanol/water - 50:50
 - N-Heptane
 - 1,1,1 Trichloroethane
- Crock Meter Test (2), FAM test liquid according to DIN 51604, part 1,
 - 12 cycles, Part A (50% Toluene, 30% Isoctane,
 - 15% Diisobutylene, 5% Ethanol) - no change.
- UL Recognised as Printing Materials Component - UL 969 under File No. MH 16411 (N)
- CSA Accepted as Class 7924 under File No. 99316 - indoor and outdoor use.

Weather Resistance (Thermal Cycling)

Acceleration test in the Xenon device 2000 hrs according to DIN 53387 (equivalent to 4-5 years outdoor exposure to weather) : No change

Temperature Resistance

300°C for 1 min. 250°C for 7 days 150°C for 14 days	Dimensional Stability : No Change
Without Stress -60°C With Stress -30°C (tested according to Gardner Impact Test)	No Change No Change

Humidity Resistance

3 days at 32°C (90°F) and 90% relative humidity	No Change
3 days at -40°C (-40°F)	No Change

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Processing

Marking/Cutting:

ScotchMark Laser markable Labelstock 7847 can be marked and cut with all Nd-Yag laser marking equipment on the market.

In order to optimise optical results we recommend to individually adjust marking parameters (power, pulse rate, speed) to your requirements depending on the kind of label to be produced (BARCODES or characters).

When laser marking, you should always ensure that the emissions at the laser beam work area are extracted by the combination of a suitable encapsulation and an adequate exhaust system. Additional filtration is not required.

For more information about emissions arising during the laser marking process with ScotchMark 7847, please contact our division Safety, Security, Environmental Protection and Product Assurance in Neuss, Germany (Phone : 49-2131-14-2042).

Printing:

Screen printing with weather resistant inks.

Die-Cutting:

When weed-stripping the inflexibility of the material has to be considered. Therefore the use of "rounded" corners is recommended.

Warranty & Liability

All information above is based in our present experience with the material. Prior to the use of the product by the customer it is his responsibility to test whether it is suitable for the intended application, always considering all relevant factors that might affect this application.

All warranty and liability issues including the warranty period for this product will be settled on the basis of our general trade conditions valid at the time, except if there are legal regulations which stipulate different proceedings.

3M does not assume warranty and liability for the converting of the films.

Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

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3M

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