

Transportation Safety Division

3M™ Stamark™ Pavement Marking Tape Series 270 ES

Product Bulletin 270 ES
June 2020

Replaces Product Bulletin 270 ES Dated May 2011

1 Description

3M™ Stamark™ Pavement Marking Tape Series 270 ES (“Tape”) is a retroreflective patterned polymer pavement marking that can be used as an inlay marking on new asphalt or as an overlay marking on asphalt and concrete pavement surfaces in good condition.

The Tape offers “Extended Season” applications due to an improved pressure sensitive adhesive (PSA) package on the bottom surface.

The Tape does not require 3M Stamark Surface Preparation Adhesive P-50 (“P-50”) or 3M Stamark Low VOC Surface Preparation Adhesive SPA60 (“SPA60”) prior to application, if applied during the application season as outlined in the [3M Climate Guide for 3M Stamark Pavement Marking Tapes](#).

Series A270 ES: No liner. Used for lane lines, edge lines, channelizing lines, gore markings, stop bars, and crosswalks.

Series L270 ES: With liner. Used to cut symbols and legends.

Series SMS-L270 ES: With liner. Precut symbols and legends.

1.1 Product Features

- o Durable, conformable to pavement and retroreflective
- o Embedded net provides increased tear resistance
- o Pressure sensitive adhesive (PSA) on bottom surface
- o No surface preparation adhesive required when applied within standard tape application season as by the 3M Climate Guide
- o Can be applied early and late season, down to 40 °F (4 °C) with use of 3M Stamark Surface Preparation Adhesive P-50 or 3MTM Stamark Low VOC Surface Preparation Adhesive SPA60
- o Retroreflective layer of glass beads bonded in a highly durable polyurethane topcoat
- o Manufactured without the use of heavy metals, lead chromate pigments or other similar, lead containing chemicals
- o Nominal total thickness of 0.090 in. (2.3 mm)
- o White: 270 ES
- o Yellow: 271 ES

2 Specifications

2.1 Retroreflectivity

Table 1 presents minimum initial coefficient of retroreflected luminance (R_L) values for tape when measured in accordance with ASTM D4061 and ASTM 4505. R_L values are expressed in millicandelas per square foot per footcandle [(mcd • ft⁻²) • fc⁻¹].

Table 1. Minimum R_L values for white and yellow Tape.

	White (270 ES)	Yellow (271 ES)
Entrance Angle ^a	88.76°	88.76°
Observation Angle ^a	1.05°	1.05°
Coefficient of Retroreflected Luminance [mcd/m ² /lux]	300	250

a. An Entrance Angle of 88.76° and an Observation Angle of 1.05° are used to simulate the viewing geometry of a driver at a distance of 30 meters.

2.2 Color

The daytime and nighttime colors of Tape conform to ASTM D6628, the Standard Specification for Color of Pavement Marking Materials.

2.3 Skid Resistance

The patterned, retroreflective, pliant polymer surfaces of Tape shall provide average initial skid resistance values of 45 BPN or more when tested according to ASTM E303, subject to the following modification:

- o Skid resistance is calculated as the average of two measurements taken at an angle of 45° from one another.

2.4 Patchability

Snow removal equipment and heavy traffic may cause wear and damage to Tape. Such damaged areas can be repaired using patches made of Tape. Remove damaged Tape and replace it according to the instructions presented in the “Overlay Applications” section of [3M Information Folder 5.7](#).

3 Application

Install Tape according to the instructions presented in [3M Information Folder 5.7](#).

All applications should be installed using the instructions in the appropriate section of 3M Information Folder 270 ES. Surface preparation adhesive is not needed when applying the tape during the application season outlined in the 3M Climate Guide for 3M Stamark Pavement Marking Tapes. The tape can be applied down to 40 °F (4 °C)

ambient temperature outside the dates outlined in the Climate Guide for Stamark pavement marking tapes with the use of P-50 or SPA60. For long line applications, the P-50 or SPA60 surface preparation adhesive should be applied with a 3M Adhesive Spray Applicator PS-14. For transverse markings, the surface preparation adhesive should be applied using a solvent resistant 3/8 inch nap paint roller.

Road lanes are typically exposed to different levels of traffic shear exposure. Road lanes that are exposed to a high frequency of high shear turning, especially by trucks and other large vehicles, require use of SPA60 or P50 for application of Stamark pavement marking tapes. The following table summarized the product and surface preparation adhesive application recommendations by shear condition:

Contact 3M Technical Service at 1800-553-1380 for questions.

Table 2.

Shear Level	Product and Adhesive Recommendation
Very High Shear	Stamark Tape Use SPA60
High Shear	Stamark Tape "A" and "L" Series Use SPA60
Pounds per 100 sq ft	Stamark Tape "A" and "L" Series Use P50 or SPA60
Low Shear	Stamark Tape "A" and "L" Series
Within the Climate Guide Recommendations	

4 Durability

The Tape is weather resistant and provides excellent retroreflectivity and color retention. The Tape is a highly effective lane marking material and will show no appreciable fading, lifting, shrinkage, or chipping for the duration of the warranty period, when applied according to the 3M requirements described in the 3M product literature.

The Tape’s durability depends on several environmental and traffic conditions, including, but not limited to, snow removal practices, method of application, and pavement and atmospheric conditions at the time of application. Damage will be caused by heavy trucks, excessive encroachment (crossover) on high ADT roadways, narrow lane width, unpaved shoulders, snow removal and ice control techniques. It is recommended that the customer thoroughly evaluate Tape under the conditions present at the installation location prior to large-scale implementation. While experience has shown that, properly applied, these materials are highly effective traffic control devices, 3M makes no generalized performance claims.

5 Storage

Store indoors, in a cool, dry area. Use within one year of receipt.

6 Health and Safety Information

Read all health hazard, precautionary, and first aid statements found in the Safety Data Sheets (SDS) and Article Information Sheets for important health, safety, and environmental information. To obtain SDSs and Article Information Sheets for 3M products, go to 3M.com/SDS, contact 3M by mail, or for urgent requests call 1-800-364-3577.

7 Basic Product Warranty

3M warrants to the purchaser that the Tape will be free of defects in materials and manufacture at the time of shipment and meet the specifications stated in this product bulletin (“Basic Warranty”). If Tape is proven not to have met the Basic Warranty on its shipment date, then a buyer's exclusive remedy, and 3M's sole obligation, at 3M's option, will be refund or replacement of the Tape.

8 Other Product Information

Always confirm that you have the most current version of the applicable product bulletin, information folder, or other product information from 3M's Website at <http://www.3M.com/roadsafety>.

9 Literature References

3M IF 5.2	Highway Tape Applicator (HTA)
3M IF 5.7	3M™ Stamark™ Tapes Pavement Surface Preparation and Application Techniques
3M IF 5.8	3M™ Stamark™ Pre-Cut Symbols and Legends Application
3M IF 5.17	3M™ Stamark™ Surface Preparation Adhesive P-50 Instructions for use with 3M™ Stamark™ Pavement Marking Tapes
3M IF 5.18	Application Guidelines for Pavement Markings in Grooved Pavement Surfaces
3M IF 5.21	3M™ Stamark™ Low VOC Surface Preparation Adhesive SPA60 Spray Application Instructions for Bulk Liquid for Longitudinal Pavement Marking Tapes

ASTM Test Methods are available from ASTM International, West Conshohocken, PA.

For Information or Assistance

Call: 1-800-553-1380

In Canada Call:

1-800-3M HELPS (1-800-364-3577)

Internet:

<http://www.3M.com/roadsafety>

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All statements, technical information and recommendations contained herein are based on tests we believe to be reliable at the time of this publication, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, or conditions express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct, indirect, special, or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. Statements or recommendations not contained herein shall have no force or effect unless in an agreement signed by officers of seller and manufacturer.



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