

Traffic Safety and Security Division

3M™ High Intensity Flexible Prismatic Reflective Sheeting

Series 3300 with Pressure Sensitive Adhesive

March 2018

1 Description

3M™ High Intensity Flexible Prismatic Reflective Sheeting Series 3300 is intended for reflectorizing rigid or reboundable traffic control devices such as barricades, delineators, drums or channelizers. Series 3300 sheetings are designed for use on clean, smooth, relatively non-porous, weather resistant surfaces when prepared as detailed in 3M Information Folder 1.7.

3M High Intensity Flexible Prismatic Reflective Sheeting Series 3300 is an impact resistant prismatic lens reflective sheeting precoated with pressure sensitive adhesive and exceeds the reflectivity values of EN 12899-1:2007 for Class RA2 materials.

2 Photometric

The initial minimum coefficient of retroreflection, when measured according to CIE 54.2 using CIE standard illuminant A, conforms to Table 4 of EN 12899-1:2007 for Class RA2 materials (Table A).

Geometry of measurements		Color	
α	β_1 ($\beta_2=0$)	White	Yellow
0,2°	+5°	250	170
	+30°	150	100
	+40°	110	70
0,33°	+5°	180	120
	+30°	100	70
	+40°	95	60
2°	+5°	5	3
	+30°	2,5	1,5
	+40°	1,5	1,0

Table A: Minimum Coefficient of Retroreflection [cd/(lx · m²)]

The above angular definitions apply for the CIE Goniometer system (co-planar geometry). The sheeting shall be mounted in 0° or 90° rotation on the goniometer (0° is the roll or downweb direction).

The initial chromaticity coordinates and luminance factors conform to Class CR2 of EN 12899-1:2007 for Class RA2 materials (Table B).

Color	1		2		3		4		Luminance factor
	X	y	X	y	x	y	x	y	β
White	0,305	0,315	0,335	0,345	0,325	0,355	0,295	0,325	$\geq 0,27$
Yellow	0,494	0,505	0,470	0,480	0,513	0,437	0,545	0,454	$\geq 0,16$

Table B: Chromaticity and luminance factors

3 Recommended Application Procedures

Series 3300 sheetings may be applied using a squeeze roll applicator or by hand. The application temperature (and substrate temperature) should exceed 15 degree Celsius. If hand applied, sheeting should be applied with firm pressure using a plastic squeegee or rubber roller. Without endorsement of the use of such substrates, some comments regarding their use can be made. Plastics, including fiberglass laminates, vary as to type, composition, and manufacture, so that their use as an application surface requires careful evaluation under actual use conditions. Some plastics embrittle on exposure and some plastics contain migrating constituents that may contaminate the adhesive or cause sheeting discoloration and adversely affect performance. Also, some plastics are affected by ingredients in the sheeting adhesives that migrate into the panel.

3M Information Folder 1.7 may provide further insight into applications on plastic substrates.

Note: Care must be exercised to avoid stretching material when aligning during application. This sheeting has sufficient elongation to permit its flexing on reboundable plastic devices when impacted. However, if it is stretched during application, this feature will be significantly reduced and cracking may result.

4 General Performance Characteristics

The durability of 3M™ High Intensity Flexible Prismatic Sheeting Series 3300 will depend upon many factors including, but not limited to, substrate selection and preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance. The user must determine the suitability of this material on any specific substrate or device for its intended use.

Applications on improperly prepared, excessively rough or non-weather resistant surfaces, or exposure to severe or unusual conditions can reduce the durability of such applications.

Purchaser should select a suitable test for determining reflective sheeting performance on any device or substrate. For reboundable substrates, the test should include plastic manufacturer's recommendation for impacting reboundable plastic traffic control devices.

Warranted durability

3M Company warrants that 3M™ High Intensity Flexible Prismatic Reflective Sheeting Series 3410 to be used for vehicle safety markings will remain effective for its intended use as described in the following table:

Zones A, B and C

Ink Series printed on sheeting 3410	Overprint Clear or Overlaminated	Vehicle Markings
Pre-printed sheeting	---	36 months
990	---	36 months

Customers right

In Europe 3M warrants for a period up to 36 months from date of application (concrete definition of the period is subject to the terms of sale) that Sheeting Series 3410 sold by 3M to be used for vehicle markings is free of defects in material and workmanship, subject to the following provisions:

If Sheeting Series 3410 is processed and applied to a vertical $\pm 10^\circ$ surface in accordance with all 3M application and fabrication procedures provided in 3M's product and information bulletins, technical memos (which will be furnished to the agency upon request), including the exclusive use of 3M matched component systems, process colors, clear coatings and recommended application equipment; and

If the marking deteriorates due to natural causes; such as fading, cracking, peeling, lifting or discoloration; 3M's sole responsibility and purchaser's and user's exclusive remedy shall be that 3M will provide replacement of the 3M materials per the following:

Total Warranty Period	Full Replacement	Pro-Rata Replacement Period	Monthly Reduction In Allowance
36 months	24 months	25 th -36 th month	1/12

Such failure must be solely the result of design or manufacturing defects in the Series 3410 sheeting and not of outside causes such as: improper fabrication, handling, maintenance or installation; use of process colors, thinners, or coatings and sheeting not made by 3M; use of application procedures not recommended by 3M; applied to a surface at greater than $\pm 10^\circ$ from vertical; failure of substrate; exposure to chemicals, abrasion and other mechanical damage; collisions, vandalism or malicious mischief.

3M reserves the right to determine the method of replacement.

Replacement sheeting will carry the unexpired warranty of the sheeting it replaces.

Claims made under this warranty will be honored only if 3M is notified of a failure within a reasonable time, reasonable information requested by 3M is provided and 3M is permitted to verify the cause of the failure.

5 Compatible Products

Print Applications Screen

- 3M™ Process Colors 990

Copy Part Applications

- 3M™ Scotchcal™ Film 3650-12 (Black)
- 3M™ TFEC 260 D

All Applications

- Selected 3M application tapes

Important: Screen-printed sign faces must be sufficiently ventilated during the filling of the rack or immediately run through a conveyor. If the print is not ventilated properly, the solvents may damage the top film of the sheeting. Refer to Product Bulletin 990 inks and Information Folder 1.8 for more details.

6.1 Health and Safety Information

Read all health hazard, precautionary and first aid statements found in the Material Safety Data Sheet (MSDS), and/or product label of chemicals prior to handling or use.

6.2 Disclaimer

THE 3M WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING OR OF PERFORMANCE, CUSTOM OR USAGE OF TRADE.

6.3 Limitation of Liability

Except for the limited remedy stated above, and except where prohibited by law, 3M will not be liable for any loss or damage arising from the Signs or any 3M product, whether direct, indirect, special, incidental or consequential damages (including but not limited to lost profits, business or revenue in any way), regardless of the legal theory asserted including warranty, contract, negligence or strict liability.

7 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.mmm.com/tss>.

8 Other Product Information

IF 1.3	Instructions for Squeeze Roll Applicator
IF 1.5	Hand Application Instructions
IF 1.6	Instructions for Hand Squeeze Roll Applicator
IF 1.7	Sign Base Materials
IF 1.8	Colour Application Instructions
IF 1.10	Cutting, Matching, and Removal Instructions
IF 1.11	Storage Maintenance, and Removal Instructions

Important Notice to Purchaser

All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. All questions of warranty and liability relating to this product are governed by the terms of the sale subject where applicable to the prevailing law. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

For Further Assistance

For help on specific questions relating to 3M™ reflective products, please contact your local 3M Application Engineer or contact:



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