



# 3M™ Engineer Grade Reflective Sheeting Series 3290i

## Health & Safety

Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department on 01344 858000.

## Product Description

3M™ Engineer Grade Reflective Sheeting Series 3290i is an enclosed lens reflective sheeting designed for the production of static, vertically mounted, road traffic signs, multi-colour signs, emblems and other markings that appear similar in daytime and at night when viewed by reflected light. Engineer Grade reflective sheeting remains highly reflective when totally wet by rain and when viewed at wide incidence angles

Pressure Sensitive Adhesive (PSA) backed Series 3290i sheeting is subject to rigid quality standards to ensure uniformly high quality, and is produced in roll widths up to 1220mm (48 inches) in the following traffic signing colours.

Colour	Product Code
White.....	3290i
Yellow.....	3271i
Red.....	3272i
Blue.....	3275i
Interstate Green.....	3277i
Brown.....	3279i
Sprocketed White.....	3260**

\*\*380mm (15 inch) width only

## Photometrics and Coefficients of Retroreflection

The values in Table A are minimum coefficients of retroreflection expressed in candelas per lux per square meter (cd/lux/m<sup>2</sup>). Measurements are made according to Section 5 of BS873: Part 1: 1983 and in accordance with CIE Publication 54: 1982.

Table A

COEFFICIENTS OF RETROREFLECTION				
Obs. Angle	Colour	Entrance Angles		
		-5°	15°	40°
12'	White	70	55	15
	Yellow	50	35	8
	Red	12	10	3
	Interstate Green	5	3	1
	Blue	4	3	1
20'	White	50	45	10
	Yellow	35	20	5
	Red	10	8	2.5
	Interstate Green	5	3	1
1.0°	White	5	3	1.5
	Yellow	3	2	0.5
	Red	1.5	1	0.3
	Interstate Green	1	1	0.2
	Blue	0.6	0.3	0.1

**Table B**

Colour	1		2		3		4		Min Luminance Factor
	x	y	x	y	x	y	X	y	
White	0.355	0.355	0.305	0.305	0.569	0.341	0.655	0.345	0.75
Yellow	0.545	0.434	0.487	0.423	0.427	0.483	0.465	0.534	0.50
Red	0.690	0.310	0.595	0.315	0.569	0.341	0.655	0.345	0.07
Interstate Green	0.313	0.682	0.313	0.453	0.248	0.409	0.127	0.557	0.04
Blue	0.078	0.171	0.198	0.252	0.240	0.210	0.137	0.038	0.05

## Colours

The chromaticity and the luminance factor shall comply with the limits defined in Table B; when measured using the apparatus described in Clause 6.2 of BS 873: Part 1: 1983; and the procedure described in Clause 6.3 of BS 873: Part1: 1983, varied as follows:

*Measurements shall be made using a polychromatic Standard Illuminant D65. The sample shall be illuminated at 0° to the surface and measure the reflected light in the direction of 45° to the normal to its surface (CIE O/45 geometry).*

## Application

3M Engineer Grade reflective sheeting may be applied to most clean, dry, relatively non-porous, weather resistant surfaces. For specific recommendations on application surfaces and surfaces preparation, see Information Folder 40.

Sheeting with pressure sensitive adhesive is designed for application by hand or by using a mechanical squeeze roll applicator and is well suited for field application, since it requires a minimum of effort.

Application should take place only when air and application surface temperatures are above 10°C.

3M Engineer Grade reflective sheeting is generally recommended for use on flat surfaces. Although flexible, the sheeting may not conform to some embossed or compound curve surfaces. Because of the inherent variation in the nature of these surfaces, trial applications should be made by the user to determine suitability of the application for its intended use.

## Fabrication

### Screen Processing

3M Engineer Grade reflective sheeting may be screen processed 3M™ Process Colour Series 990. See relevant Product Bulletin for more information.

### Clear Coating

Clear coating of 3M Engineer Grade reflective sheeting is NOT recommended.

### Drying

See Information Folder 60 for air-drying and oven drying recommendations.

### Cutting

The sheeting may be hand cut, band sawed, guillotined, or die cut according to specific instructions in Information Folder 50.

### Premasking and Prespacing

3M Engineer Grade reflective sheeting may be premasked for overpainting or large applications. It may be prespaced for ease in legend applications. See Information Folder 51 for instructions.

Processed sheeting must be oven dried before tape application to ensure good colour adhesion. See Information Folder 60.

## Storage

3M™ Engineer Grade Reflective Sheeting Series 3290i should be stored in a cool, dry area, preferably at 16-24°C and 30-50% relative humidity and should be applied within one year of purchase.

Rolls should be stored horizontally in the shipping carton. Partially used rolls should be returned to the shipping carton or suspended horizontally from a rod or pipe through the core. Unprocessed sheets should be stored flat. Finished signs and applied blanks should be stored on edge, supported by wooden battens. Screen processed signs must be protected with SCW-82 slipsheet paper. Place the glossy side of the slipsheeting against the sign face and pad the face with closed cell packaging foam. Double-faced signs must have the glossy side of the slipsheet against each face of the sign. Unmounted-screened faces must be interleaved with SCW-568 slipsheet, glossy side against the sign face.

Avoid banding, crating, or stacking signs or faces. Package for shipment in accordance with commercially accepted standards to prevent movement and chafing. Store sign packages indoors on edge.

**Panels or finished signs must remain dry during shipment and storage. If packaged signs become wet, unpack immediately and allow signs to dry.**

## Cleaning

Signs that require cleaning should be flushed with water, then washed with a dilute solution of mild, non-abrasive detergent and soft bristle brush or sponge. Avoid pressure that may damage the sign face. Flush with water following washing. Do not use solvents to clean signs.

N.B. Dew Resistant Coated signfaces must be flushed with clean water only. Detergents must not be used.

## Effective Performance Life

The effective performance life of 3M Engineer Grade reflective sheeting will depend upon substrate selection and preparation, compliance with recommended application procedures, exposure conditions and maintenance.

Experience has shown that satisfactory performance life of 7 years can be expected under normal, vertical, stationary, exterior exposure conditions.

## Important Notice to Purchaser

Technical information provided by 3M is based on experience and/or tests believed to be reliable but its accuracy is not guaranteed and the results may not be relevant to every user's application. 3M does not accept responsibility or liability, direct or consequential, arising from reliance upon any information provided and the user should determine the suitability of the products for their intended use.

Nothing in this statement will be deemed to exclude or restrict 3M's liability for death or personal injury arising from its negligence.

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Except as set out above, all warranties and conditions, whether expressed or implied, statutory or otherwise are excluded to the fullest extent permissible at law.

## Technical Assistance

For help on specific questions relating to 3M Traffic Control Materials Division Products, contact your local Technical Service Representative.

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