

Traffic Safety and Security Division

# 3M™ Vehicle Safety Markings Series 823i

## Series 823i

Product Bulletin 823i  
August 2016

### Description

3M™ Vehicle Safety Markings Series 823i is an impact resistant prismatic lens reflective sheeting pre-coated with pressure sensitive adhesive and currently meets or exceeds the reflectivity requirements of EN 12899-1:2007 for Class RA2. Series 823i is intended for use on clean, smooth, relatively non-porous, weather resistant surfaces when prepared as detailed in [3M Information Folder 4.9](#).

### Features

- Impact resistant, metalized flexible retroreflective sheeting.
- Excellent angularity.
- Similar daytime and nighttime appearance.
- Suited for application over flat or simple curved surfaces.
- Up to 3 years durability.

## Color and Dimension

**Table 1. Product Codes by Color**

Product Code	Color
823i-10	White
823i-11	Yellow
823i-12	Red
823i-15	Blue
823i-83i	Fluorescent Yellow-Green
823i VWM	Red/White Chevron
823i CWM	Red/White Chevron

Roll dimensions: 1220 mm x 45.7 m

## Specifications

### Coefficient of Retroreflection

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 Class RA2 which is given below in Table 2.

**Table 2. Minimum Coefficient of Retroreflection (cd/lx/m<sup>2</sup>)**

Geometry of measurements		Color				
$\alpha$	$\beta_1$ ( $\beta_2=0$ )	White	Yellow	Red	Blue	Fluorescent Yellow-Green
0.2°	+5°	250	170	45	20	170
	+30°	150	100	25	11	100
	+40°	110	70	15	8	70
0.33°	+5°	180	120	25	14	120
	+30°	100	70	14	8	70
	+40°	95	60	13	7	60
2°	+5°	5	3	1	0.2	3
	+30°	2.5	1.5	0.4	--	1.5
	+40°	1.5	1.0	0.3	--	1.0

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 direction the roll is unwound).

## Chromaticity Coordinates and Luminance Factor

The initial chromaticity and luminance factor conform to Class CR2 of EN 12899-1:2007 for Class RA2 materials as given in Table 3 below.

**Table 3. Chromaticity and Luminance Factors**

Color	Chromaticity Coordinates								Luminance Factor
	1		2		3		4		
	x	y	x	y	x	y	x	y	$\beta$
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	$\geq 0.16$
Red	0.735	0.265	0.700	0.250	0.610	0.340	0.660	0.340	$\geq 0.03$
Blue	0.130	0.090	0.160	0.090	0.0160	0.140	0.130	0.140	$\geq 0.01$
Fluorescent Yellow-Green	0.387	0.610	0.356	0.494	0.398	0.452	0.460	0.540	$\geq 0.40$

## Recommended Application and Use

Series 823i is intended for retroreflective vehicle markings. Typical applications include the manufacturing of safety markings according to DIN 30710.

Series 823i features 3M™ Comply™ with Controltac™ Liner which greatly improves ease of installation. For installation instructions please see 3M Information Folder 4.8.

## Storage

- Cool, dry area out of direct sunlight.
- Temperature 65-75° F (18-24° C), humidity 30-50%.
- Store rolls horizontally, in carton or in original packaging.

## Limitations

Series 823i is not intended for:

- Regulatory traffic signs.
- Graphics made for automotive Original Equipment Manufacturers (OEM); please contact 3M Automotive Division for alternatives.
- Flexible Prismatic Vehicle Markings Series 823i are not designed to perform on stainless steel substrates.

## Compatible Products

For screen print applications, use [3M™ Process Color Series 990](#).

## Health and Safety Information

Read all health hazard, precautionary, and first aid statements found in the Safety Data Sheet (SDS), Article Information Sheet and/or product label of chemicals prior to handling or use. Consult local regulations and authorities for possible restrictions. Visit us at [www.3M.com/us](http://www.3M.com/us) and select SDS search to obtain current Safety Data Sheets.

## Warranty

3M™ Vehicle Safety Markings Series 823i (“Product”) is warranted (“Basic Warranty”) to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this product bulletin. If the Product 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 Product.

Product will remain visible for a period of up to three years by resisting excessive fading, cracking, blistering or peeling in normal use.

## Terms and Conditions

- Product must be processed and applied to a vertically-mounted ( $\pm 20^\circ$ ) 3M™ recommended substrate as described in this product bulletin and in accordance with all 3M procedures provided in this product bulletin and 3M Information Folders (including but not limited to IF 4.8), and applicable technical memos (which will be furnished to the manufacturer upon request).
- Any third-party imaging or altering of the Product not endorsed by 3M™ will void the 3M Warranty.
- A Product’s failure to meet the 3M Warranty must be solely the result of design or manufacturing defects in the Product and not of (a) outside causes including improper storage, fabrication, handling, maintenance or installation; (b) use of process colors, thinners, coatings or other chemicals not recommended by 3M; (c) use of application procedures not recommended by 3M; (d) exposure to chemicals or solvents not recommended by 3M; (e) abrasion and other physical damage; (f) snow or any other burial of the marking; (g) collisions, vandalism or malicious mischief; (h) failure to cut markings around rivets, seams and body panels; (i) or an act of God.
- 3M reserves the right to determine the method of replacement. Replacement product will carry the unexpired warranty of the Product it replaces.
- Claims made under this warranty will be honored only if 3M is presented with a traceable record of the Product’s Installation Date. Claims made under this warranty will be honored only if 3M is notified of a potential failure within thirty days of discovery, reasonable information requested by 3M is provided, and 3M is permitted to verify the cause of the failure.

## Exclusive Limited Remedy

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## Literature Reference

IF 4.8      3M Vehicle Safety Markings Series 823i

[IF 4.9](#)      3M Diamond Grade™ and Flexible Prismatic Conspicuity Markings  
Application Instructions For Trucks, Trailers and Specialty Vehicles

## For Information or Assistance

Call: 1-800-553-1380

In Canada Call:

1-800-265-1840

## Internet:

<http://www.3m.com/roadwaysafety>

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