



Scotchlite™

Diamond Grade[®] Conspicuity Marking Series 983

Description

Advantages

- Durable, microprismatic, retroreflective sheeting
- Available in rolls of 50mm widths homologated according to the UN/ECE Regulation 104
- For applications on rigid vehicles
- Excellent angularity in both horizontal and vertical
- Easy to apply
- Up to 8 years exterior durability
- Sheeting resists fuel vapors or occasional spills
- Additional roll widths are also available on request
- Screen printable

Application and Uses

Series 983 in 50mm width is designed to mark the side and rear perimeter of trucks and trailers according to UN/ECE104 for enhanced visibility and detection.

SL983-71 can be screen-printed for ECE 70.01 rear marking plates applications.

Limitations of End Uses

We do not normally warrant other applications, but please contact us to discuss your needs or let us suggest other 3M products.

Compatible Products

Screen Print Applications

- 3M™ Scotchlite™ Process Colors Series 880I

Product line

Property	Description
Number and color	983 -10 White -71 Yellow -72 Red

Characteristics

Property	Description
Adhesive color and type	Clear, Pressure Sensitive
Liner	Translucent Poly
Application surfaces	Flat without rivets
Application substrates	Aluminum, stainless steel, automotive paint
Application temperature range for air and substrate	15°C to 38°C
Thickness	0,36 - 0,4mm
Performance range	-34°C to +94°C

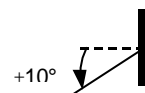
General Performance Characteristics

The durability of Marking Series 983 depends on the following:

- Selection, preparation and temperature of the substrate
- Ink formulation (screen print)
- Drying methods (screen print)
- Application methods
- Exposure conditions
- Cleaning methods

Warranted Durability

The following table shows the warranty for exposure where the face of the graphic is vertical at $90^\circ \pm 10^\circ$.



Zone 1

Ink Series printed on Sheeting 983	Clear or Overlamine	Fleet Applications
Unprinted film	None	96 months
880I	None	96 months

Note: For the full product names of the 3M products listed on this page, please see page 1.

Zone 2 and 3

Ink Series printed on Sheeting 983	Clear or Over-laminate	Fleet Applications
Unprinted film	None	84 months
880I	None	84 months

Customers right

In Europe 3M warrants for a period up to 96 months from date of application (concrete definition of the period is subject to the terms of sale) that Scotchlite™ Conspicuity Marking Series 983 sold by 3M to be used for vehicle markings is free of defects in material and workmanship, subject to the following provisions:

If Scotchlite™ Conspicuity Marking Series 983 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 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 table:

Total Warranty Period	Full Sheeting Replacement	Pro-Rata Sheeting Replacement	Monthly Reduction In Allowance
96 months	60 months	61 th -96 th month	1/36
84 months	52 months	53 rd -84 th month	1/32

Conditions

Such failure must be solely the result of design or manufacturing defects in the Scotchlite™ series 983 marking 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 marking 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.

Fabrication

Screen Printing

- Durability**

To obtain maximum durability for ECE 70.01 applications use only approved ink.

Formulations and processing conditions can affect the ink durability. Carefully follow the limitations of the specific inks and the instructions in the appropriate Product and Instruction Bulletins. Refer to the 3M Related Literature section.

- Drying**

It is recommended to check the proper temperature of the oven prior to screen printing by using irreversible temperature strips.

Cutting and Application

This Bulletin does not contain detailed application procedures. Refer to the 3M Related Literature section near the end of this bulletin.

- Check the proper temperature using an Infrared-Thermometer like 3M Scotchtrak™ IR-500.
- Cut sheeting around rivets and between seams, joints and overlapped panel.
- Apply to flat surfaces only.
- Do not apply to compound curves.
- Do not overlap sheeting.
- Contact your 3M representative for detailed processing and application procedures

Maintenance and Cleaning

Use a cleaner such as the kind used for high quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline).

Note: For the full product names of the 3M products listed on this page, please see page 1.

Using the high-pressure hot steam cleaning the following conditions should be applied/ set up:

- maximum pressure 80 bar
- maximum temperature 60°C
- minimum of 30 cm distance of cleaning jet from sheeting surface
- cleaning wand to be held at no greater angle than 45° from perpendicular to the sheeting surface

The cut cells of Diamond Grade™ Conspicuity Marking Series 983 may collect dirt, which does not affect the performance of the sheeting. Attempts to remove this dirt with high-pressure washing could affect edge adhesion.

Storage and Shelf Life

- The combined shelf life as processed and unprocessed marking series 983 cannot exceed 2 years from the date of receipt from 3M. However, the sheeting must be used within 1 year of processing even if the combined shelf life is less than 2 years.
- Partially used rolls should be returned to the shipping carton or suspended horizontally from a rod or pipe through the core.
- Store cut sheets lying flat
- Store the sheeting and the processed sheets in a clean, dry area and away from direct sunlight.
- Ship the finished sheets lying flat

Product Data

Retroreflection

At a 5° entrance angle and a 0.33° observation angle, Series 983 have the following typical coefficient of retroreflection. It is expressed in candlepower per lux per square meter [$\text{cd}/(\text{lx}\cdot\text{m}^2)$].

The entrance angle is formed by a light beam striking the surface at a point and at a line that is perpendicular to the surface at the same point.

An observation angle is formed by the light beam striking the reflective surface and returning to the observer.

Sheeting and Color			Typical Coefficient of Retroreflection
983	-10	White	650
	-71	Yellow	500
	-72	Red	150

Chemical Resistance

- Resists mild acids, mild alkalis and salts
- Excellent water resistance
- Resists occasional fuel spills

Important Notice to Purchaser/ User

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. We shall not be liable and no warranty shall apply for products not applied according to our published information folder.

Before using, user must 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.

3M Related Literature

Listed below is related 3M technical literature that may be of interest.

Subject	Bulletin No.
Product Bulletins	
3M™ Scotchlite™ Process Colors Series 840 and 880I	840/880I
Instruction Bulletins	
Application Instructions for Scotchlite™ Diamond Grade™ Conspicuity Marking Series 983.	983

For Further Assistance

For help on specific questions relating to 3M Scotchlite products, please contact your local 3M Technical service person or contact:

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