

3M™ Diamond Grade™ Vehicle Marking Film Series 983

Description

3M™ Diamond Grade™ Vehicle Marking Film Series 983 is a highly retroreflective sheeting consists of prismatic lenses formed in a durable transparent resin, sealed in a synthetic film and backed with an aggressive pressure sensitive adhesive with a protective liner.

Key Features

- Durable, microprismatic, retroreflective sheeting
- Available in rolls of 50mm widths, homologated according to UN/ECE Regulation 104
- For applications 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 available upon request
- Screen printable

Application and Uses

3M™ Diamond Grade™ Vehicle Marking Film Series 983 is designed to mark the side and rear perimeter rigid sided trucks and trailers for enhanced visibility and detection.

Series 983 can be screen-printed for ECE70.01 rear marker plate 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™ Process Colour Series 880I

Product line

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

Main Characteristics

Property	Description
Adhesive colour and type	Clear, Pressure Sensitive
Liner	Translucent
Application Surfaces	Flat without rivets
Application substrates	Aluminium, stainless steel and automotive paint
Application temperature range for air and substrate	10°C to 30°C
Thickness without premask tape	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 printing)
- Drying methods (screen printing)
- Application methods
- Cleaning and maintenance methods
- Exposure conditions

Product Data

Retroreflection

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

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.

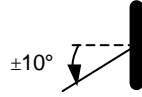
Sheeting and Colour	Typical Coefficient of Retroreflection
983 -10 White	650
-71 Yellow	550
-72 Red	150

Chemical Resistance

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

Warranted Durability

The sheeting is warranted for 96 months when used as vehicle marking and the exposure of the face is vertical at $90^\circ \pm 10^\circ$.



Application

- Check the proper temperature using an Infrared-Thermometer like 3M™ Scotchtrak™ IR-500.
- Do not overlap sheeting
- Application underneath belts or buckles is not recommended.
- Remove premask tape after application using a 180° pull off angle.
- Contact your 3M representative for detailed processing and application procedures

Maintenance and Cleaning

Hand wash with sponge, cloth, or soft brush using warm water and detergent. 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). Rinse thoroughly.

To remove grease, oil, or tar, use cloth moistened with heptane, VM&P naphtha or mineral spirits. Wash with detergent and water and rinse thoroughly. Using high pressure cleaning equipment, the following conditions should be applied/ set up:

- Maximum pressure 80 bar
- Maximum temperature 60°C
- Minimum of 1 metre distance of cleaning jet from sheeting surface
- Cleaning wand to be held at no greater angle than 15 degree from perpendicular to the sheeting surface
- Wide spray pattern

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.
- Ship the finished sheets lying flat.
- Store the sheeting in a clean, dry area and away from direct sunlight.

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.

Important Notice to Purchaser

The 3M products described in this publication are covered by a 3M warranty and limitation of liability.

3M's warranty provides that if 3M finds that goods are defective in material or workmanship they will be replaced or the price refunded at 3M's option but note that 3M does not accept liability for other direct losses (except for personal injury or death) or consequential losses relating to defective products or from information supplied by 3M.

Purchasers and users of 3M products, and not 3M supplying companies, are always solely responsible for deciding on the suitability of the 3M product for their required or intended use.

3M Related Literature

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

Subject	Bulletin No.
Instruction Bulletins	
Application Instructions for Diamond Grade™ Vehicle Marking Film for Rigid Sided Vehicles Series 983	5.13.1
Product Bulletins	
3M™ Process Colour Series 880I	880I

Glossary of Terms

Retroreflectivity

A retroreflective material reflects the incoming light back to the light source. 3M reflective graphics reflect the car headlights back to the car driver.

Technical Assistance

For help on specific questions relating to 3M Traffic Safety Systems Division Products, contact your local Technical Service Representative for the UK & Ireland.

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