



Scotchgard™

Graphic and Surface Protection Film Series 8991

Description

3M™ Scotchgard™ Graphic and Surface Protection Film 8991, 8991R and 8991RW are clear, tough polyester overlaminates that provide resistance to many types of accidental and intentional stains and abrasion, and are easier to clean than traditional overlaminates. Film 8991R and 8991RW are also removable from many surfaces.

Advantages

- UV, abrasion and gouge protection
- Graffiti-resistant for easy cleaning
- Exterior durability up to 5 years
- Interior durability up to 8 years

Applications and End Uses

Film series 8991 is intended to provide protection for graphics and other substrates on smooth, flat or simple curved surfaces when used as described in this bulletin and in the following types of applications. Such applications may be warranted by the 3M™ MCS™ Warranty.

- Interior or exterior graphics and signs
- Commercial vehicle or fleet graphics and emblems
- Substrate and surface protection

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.

Specifically, we do not warrant this film for the following:

- Cut film graphics may show entrapped air under film 8991/8991R/8991RW; use only on a customer test-and-approve basis
- Banners or other flexible substrates
- Solvent printed piezo graphics must be thoroughly dried before application of film 8991/8991R/8991RW. We recommend 24 hours room temperature drying or equivalent.
- Painted or unpainted gypsum wall board

- Painted surfaces with poor paint-to-substrate adhesion, or uncured paint
- Porous or unsealed surfaces such as concrete
- Vandalism or excessive product abuse such as cutting or gouging or resulting damage to the substrate
- Application over rivets: rivets must be cut around
- Using film 8991 (permanent) where removability may be needed
- Gasoline vapors or spills if allowed to penetrate the edges of the graphic

Compatible Substrates

- Most smooth graphic films, solid colour or imaged, and without a clear coat applied
- Smooth, untextured surfaces such as plastics, painted metals, countertop laminate or laminated wallboard
- Film 8991R / 8991RW are removable from all compatible substrates except printed and unprinted graphic films

Product Line

- Scotchgard 8991
- Scotchgard 8991R
- Scotchgard 8991RW

Characteristics

Characteristic	Description
Film	0.10 mm (4 mil) transparent polyester
Gloss	High gloss
Thickness (film and adhesive)	0.13 – 0.14 mm (5.3 to 5.7 mils)
Adhesive type and color	8991 : Permanent, pressure sensitive, clear 8991R / RW : Removable, pressure sensitive, clear
Liner 8991 / 8991R Liner 8991 RW	polycoated paper PET
Recommended application surfaces	Flat, smooth, untextured; simple curves
Application temperature range	10° - 32°C (50° - 90°F)
Removal	8991 : Permanent 8991R / 8991RW : Removable
Applied shrinkage	0.13 mm (5 mil)
Service temperature range	-54° to +107°C (-65° to +225°F)
Chemical resistance	Resists most organic solvents and fluids; mild alkalis, mild acids and salt.
Roll sizes	48" × 50 yards (122 cm × 45 m)

Effective Performance Life

The effective performance life of protection film series is based on field experience and exposure tests conducted throughout the United States. The actual performance depends on the following:

- Use of listed compatible products
- Selection and preparation of the substrate
- Application methods
- Cleaning and maintenance methods
- Amount of abuse
- Exposure conditions

Note: Refer to the Limitations of End Uses for warranty limitations

Warranted Durability for 3M Graphic Constructions

3M warrants the graphic construction and durability of film series 8991 when the graphic is constructed and applied as specified in 3M literature.

Warranted Durability

Product	Zone 1	Zone 2	Zone 3
8991	5 years	3 years	2 years
8991 R	5 years	3 years	2 years
8991 RW	5 years	3 years	2 years

Exceptions to the above are:

The removability of 8991R and 8991RW is limited to 3 years. Scotchgard 8991 has a permanent adhesive and is not removable.

The warranty applies to films that are exposed at a vertical angle (defined as 90°±10°). A significant decrease in durability may be experienced if films are exposed other than vertical. Such non-vertical applications must be on a test and approval basis to determine acceptability. 3M does not warrant non-vertical exposures.

Commercial Graphics Division products are not tested against automotive manufacturer's specifications and are, therefore, not warranted for use in fabricating graphics for automotive OEM's.

Expected Performance for Non-3M Base Film/Ink Graphics

3M expects film series 8991 to perform the same or very similarly to graphics constructed with 3M products. However, due to the wide variety of possible constructions, we cannot warrant premature graphic failure where other manufacturer's products have also been used.

Fabrication

3M™ Scotchgard™ Graphic and Surface Protection Film Series 8991 is compatible with most squeeze roll laminators. No heat is required. Standard setup of the laminator is recommended.

Film series 8991 is also intended for wet application.

How to Apply Multiple Panels of Pre-laminated Graphic Film

Edge-to-edge panel seaming is recommended (see instructions below). For applications where overlaps are not subject to picking or environmental stresses, normal panel overlaps can be used.

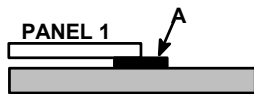
- If the edges that meet are factory cut, align the edges of each panel and squeegee well. A wet or dry application can be used.
- If the edges are hand cut, it is unlikely that they are straight enough for good edge-to-edge fit. See *Making Perfect Fit Hand Cut Overlaps*. Only a dry application can be used.

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

Making Perfect Fit Hand Cut Overlaps for Dry Application

Note: The tape referenced in this procedure is one inch wide 3M filament or masking tape. The panels are graphic film to which film series 8991 has already been laminated.

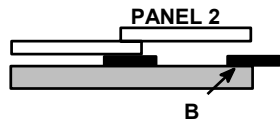
1. Apply panel 1.
 - a. Measure the width of panel 1.
 - b. Center and apply a strip of tape (A) onto the substrate where the first panel overlap will occur. This protects the substrate during a cutting.



- c. Apply the first panel as usual, except do not apply hard squeegee pressure on the edge where the substrate has been taped.

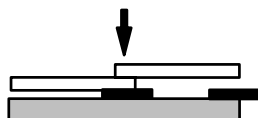
2. Apply panel 2.

- a. Measure the width of panel 2.
 - b. Center and apply a strip of tape (B) onto the substrate where the second panel overlap will occur.

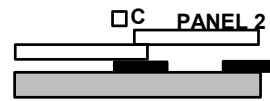


- c. Apply the second panel as usual, overlapping the previous panel where they meet, except do not apply hard squeegee pressure on the edges where the substrate has been taped.

3. Continue with this process until all panels have been applied to the substrate.
4. With a sharp razor blade in a safety holder, cut down the center of the panel overlap, using just enough pressure to cut through both panels. Do not cut through the tape, which protects the substrate.



5. Remove the narrow piece (C) from the cut overlap from panel 2.



6. Lift the edge of panel 2 and remove the narrow piece (D) from panel 1.



7. Lift the edge of panel 1 and remove the remaining tape.



8. Inspect the substrate to make sure that it is clean and free from tape adhesive. Clean the area if necessary.



9. Press the cut edges together and re-squeegee the seams.

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 or alcohol, and have a pH value between 3.0 and 11.0 (neither strongly acidic nor strongly alkaline). A cloth or soft bristle brush can be used to apply or wipe the cleaner.

Note: Graphics damaged by improper cleaning are not covered by the 3M warranty.

Removal

Film 8991 is a permanent product; its adhesive is not intended to be removable.

Film 8991R / 8991RW can be removed from most surfaces at room temperature. Use heat if needed, to facilitate the removal.

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

Shelf Life, Storage, and Shipping

- Film has a shelf life of one year after receipt from 3M. Laminated film has a shelf life of one year. The total shelf life of a graphic before and after processing cannot exceed two years.
- Store the film in a clean, dry area, away from direct sunlight, and at an ambient temperature less than 30°C (86°F).
- Ship the finished graphic lying flat or in a roll. To roll the graphic, wrap it film-side out onto a core that is 15 cm (6 inches) or larger in diameter. These methods prevent the graphics and premask from wrinkling and popping off the liner.

Flammability Characteristics

For film series 8991 when used as instructed.

Test Method	Results
ASTM E84	Flame Spread Index = 5 Class 1 Rating Smoke Developed Index = 65
ASTM E-162	Flame Spread Index = 0.0 Flame spread is non-existent Surface flammability of materials using a radiant heat source
ASTM E662	Specific optical density of smoke generated by solid materials. Specific Optical Density (Ds) <u>1.5 minutes</u> <u>4.0</u> <u>minutes</u> Flaming: 0.08 0.28 Non-flaming: 0.03 0.03
NFPA259	Heat release per unit mass. Potential heat in BTU/LB is 24615 No Required Level
FMVSS302	Burn resistance of materials used in motor vehicles. Passed test on aluminum and glass. Neither ignited.
SMP800-C	Bombardier test method for toxic gas generation by materials on combustion. Passed detected levels of the gases tested are less than the required limit or less than detectable.
BS476:Part 7	Fire tests on building materials and structures; surface flame spread. Passed Category II Trains.

Important Notice

This bulletin provides technical information only. All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.

Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

Related 3M Literature

Please contact 3M for further technical literature.

Technical Assistance

For help on specific questions relating to 3M Commercial Graphics Division products, contact 3M Technical Service:

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