

8991
Removable 8991R
High Gloss 8993

Product Description

- Clear, tough, polyester overlaminates

Product Features

- Easy to clean
- Graffiti resistant
- 8991, 8991R: Extra thickness and special hardcoat provide superior substrate and surface protection from stains, abrasion, gouges, UV light, graffiti
- 8991R may be used on glass for general protection
- 8991, 8991R: Expected performance life of 3 years (unwarranted period applied to a flat, vertical, outdoor surface)
- 8993: Expected performance life of 5 years (unwarranted period applied to a flat, vertical, outdoor surface)

Recommended Types of Graphics and End Uses

- Provide graphic or substrate protection on smooth, flat or simple curved surfaces.
- Labels for fleet/vehicle/transit
- Interior or exterior graphics and signs
- 8991 and 8991R: Windows and glass

Characteristics

These are typical values for unprocessed product. Processing may change the values.

Performance Characteristics

Characteristic	Value
Material	Transparent polyester
Cast or non-Cast	Extruded
Thickness	8991/8991R without adhesive: 4 mil (0.10 mm) 8991/8991R with adhesive: 5.3 to 5.7 mil (0.13 mm to 0.14mm) 8993: 1 mil
Gloss	High gloss
Adhesive Type and Color	8991: Permanent, pressure sensitive, clear 8991R: Removable, pressure sensitive, clear 8993: Permanent, pressure sensitive, clear
Liner	8991: polycoated 8991R: polycoated 8993: Kraft paper
Lamination Temperature	60 to 100 °F (15 to +38 °C)
Removal	8991: Permanent 8991R: Removable without heat (most substrates); removal not warranted 8993: Permanent
Applied Shrinkage	5 mil (0.13 mm)

Quick Links

[3M Graphics Warranties](#)
[Technical Information Selector](#)
[Safety Data Sheets \(SDS\)](#)
[Flammability \(ASTM E84 Reports\)](#)
[Videos](#)

Some of these links lead to web-based resources that are not product-specific.



Characteristic	Value
In Use Temperature Range	8991 and 8991R: -65 to +200 °F (-54 to +93 °C) 8993: -30 to +200 °F (-34 to +93 °C)
Chemical Resistance	Resists most organic solvents and fluids; mild alkalis, mild acids and salt.
Flammability	ASTM E84 reports: 8991 and 8991R , or go to the On-line Product Catalog at 3Mgraphics.com All other test reports: call 1-800-328-3908

Warranty Information

All 3M graphic protection products are covered by the 3M Basic Product Warranty.

A warranty period may be offered based on the graphic construction and application details. Always refer to the 3M Product Bulletin for the 3M base film or flexible substrate you are using to determine if the graphic protection product you want to use is recommended and what, if any warranty period is offered.

IMPORTANT NOTE

Warranty information including limitations and exceptions and warranty periods for this product can be found at 3Mgraphics.com/warranties.

Warranty Coverage Overview

The warranty coverage for eligible graphics is based on the user both reading and following all applicable and current 3M Graphics Product and Instruction Bulletins. The warranty period for eligible graphics is as stated in the 3M Graphics Warranties Matrices at the time that the film was purchased. Information found at 3Mgraphics.com/warranties includes:

- [3M Graphics Warranties Bulletin](#)
 - This bulletin contains information on limitations and exceptions, and warranty period reductions for 3M Graphics Warranties. The warranty period may be reduced and stipulations may apply for certain constructions and applications, and graphic exposures as covered in this Bulletin.
- [3M Graphics Warranties Selector](#)
 - Use this selector to search for your vertical warranty period by product number, ink type, and ink/printer platform.
- [U.S. Desert Southwest Region Map](#)
 - Use this map of hot, arid desert areas to determine if you are subject to reduced warranted durabilities.

The warranties set forth in this Bulletin are made in lieu of all other express or implied warranties, including any implied warranty of merchantability, fitness for a particular purpose, or arising out of a course of dealing, custom, or usage of trade.

3M Basic Product Warranty

3M Graphics Products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in its applicable 3M Graphics Product Bulletin and as further set forth in the [3M Graphics Warranties Bulletin](#).

Limited Remedy

The limited remedy applicable to each warranty is addressed in the 3M Graphics Warranties Bulletin found at 3MGraphics.com/warranties.

Limitation of Liability

Except to the extent prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED HEREIN), INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LABOR, NON-3M MATERIAL CHARGES, LOSS OF PROFITS, REVENUE, BUSINESS, OPPORTUNITY, OR GOODWILL) RESULTING FROM OR IN ANY WAY RELATED TO 3M'S GRAPHICS PRODUCTS, SERVICES, OR THIS BULLETIN. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought.

Warranty Period Matrices

See the 3M Graphics Warranties Matrices at 3MGraphics.com/warranties, for vertical warranty period information specific to your film.

Additional Limitations

See the 3M Graphics Warranties Bulletin at 3MGraphics.com/warranties, for terms, additional limitations of your warranty, if any, information on reduced warranties for different exposures, and limitations of liability.

Health and Safety



CAUTION

When handling any chemical products, read the manufacturers' container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information. To obtain SDS sheets for 3M products go to 3M.com/SDS, or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.

Air Quality Regulations

State Volatile Organic Compound (VOC) regulations may prohibit the use of certain chemicals with VOC's in graphic arts coatings and printing operations. For example, the California South Coast Air Quality Management District prohibits use of certain solvent-based solutions without a permit and other California AQMD's prohibit use of certain solutions without a permit or regulatory exemption. Check with your State environmental authorities to determine whether use of this solution may be restricted or prohibited.

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by:

- the combinations of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.

Graphics Manufacturing



CAUTION

Before using any equipment, always read the manufacturer's instructions for safe operation.

Completely Dry Graphics

i IMPORTANT NOTE

Incomplete drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under any 3M Graphic Warranty.

See the ink's 3M Product and Instruction Bulletin for more details.

Graphic Protection

Graphic protection may improve the appearance, performance and durability of the graphic. See the [3M Graphics Market Product Catalog](#), for more information.

Application Tapes

There are two types of application tapes. See [3M Instruction Bulletin AT-1](#) to determine what application tape is recommended for your film or finished graphic.

Premasking Tape

Increases stiffness during application while preventing stretching and damage. Use when little or no liner is exposed. See [3M Instruction Bulletin 4.3](#) for complete details.

Prespacing Tape

Holds cut and weeded letters or graphics in place during application and after removing the film liner, while preventing stretching and damage. Use when large amounts of liner are exposed. See [3M Instruction Bulletin 4.3](#) for complete details.

Application and Installation

In addition to other 3M Bulletins specified in this document, the following Bulletins provide details that you may need to successfully apply a graphic.

- [3M Instruction Bulletin 4.22](#). Lamination Basics for Inkjet Printed Graphics.
- [3M Instruction Bulletin 5.5](#). Application, General Procedures for Interior and Exterior Dry Application.
- [3M Instruction Bulletin 5.7](#). Application, Wet Method for Translucent, Inkjet, Screen Printed and Cut Graphics.

Maintenance and Cleaning

Use a cleaner designed 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). See [3M Instruction Bulletin 6.5](#) for details.

Stain and Cleaning

Stain	Cleaning Method			
	Dry Cloth	Detergent and Water	Isopropyl Alcohol or Household Cleaner	3M™ Citrus Based Cleaner
Ballpoint Pen Ink		X		X
Crayon			X	
Coffee/Tea	X			
Fruit Juice	X			
Grease			x	
Lipstick			X	
Ketchup			X	

Stain	Cleaning Method			
	Dry Cloth	Detergent and Water	Isopropyl Alcohol or Household Cleaner	3M™ Citrus Based Cleaner
Paint				X
Permanent Marking Pen			X	X
Shoe Polish			X	

Note: Old and/or thicker stains may require longer soaking time or reapplication of the cleaner.

Removal

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

Film 8991R is removable and may require heat. The ease and rate of removal depends on a number of factors. See [3M Instruction Bulletin 6.5](#) for details.

Shelf Life, Storage and Shipping

Shelf Life

The shelf life is **never more than 1 year** from the date of manufacture on the original box.

Storage Conditions

- at an ambient temperature less than 86 °F (30 °C)
- Out of sunlight
- Clean, dry area
- Original container
- Bring the film to print room temperature before using

Shipping Finished Graphics

Flat, or rolled printed side out on 6 inch (15 cm) or larger core. This helps prevent the liner, and, if used, the application tape from popping off.

3M Commercial Solutions

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