

Product Description

- For solvent, UV, and latex inkjet printing and screen printing
- 5.9-mil perforated vinyl film

Product Features

- Pressure-sensitive adhesive
- 40% perforated pattern allows a full image to be seen on the outside of a window, while allowing people inside to still see through the windows
- Ultra removable from most surfaces within the expected performance life
- Expected performance life of one year (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface)

Recommended Types of Graphics and End Uses

- Short- to long-term indoor and outdoor window graphics
- Retail promotions
- Building windows and dividers, both interior and exterior
- Non-regulated vehicle and bus windows

Recommended Compatible Products

See [3M.com/graphicswarranties](https://www.3m.com/graphicswarranties) for a complete list of compatible products approved by 3M for use with the base film covered in this bulletin and for the creation of graphics that may be eligible for the 3M™ MCS™ Warranty.

Graphic Protection

- [3M™ Scotchcal™ Gloss Overlaminate 8518](#)

Other Products

- 3M™ Edge Sealer 3950
- 3M™ Edge Sealer Tape

Characteristics

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

Physical Characteristics

Characteristic	Value
Material	Vinyl film with a 40% perforation pattern
Film Color	White, opaque
Thickness	Without adhesive: 5.9 mil (0.15 mm) With adhesive: 6.8 mil (0.17mm)
Adhesive	Pressure-sensitive
Adhesive Color	Clear
Liner	Polycoated paper
Typical Adhesion 24 Hours After Application	ABS: 0.5 to 1.5 lbf/in. (0.9 to 2.6 N/cm) Acrylic: 0.5 to 1.5 lbf/in. (0.9 to 2.6 N/cm) Anodized aluminum: 1.5 to 2.5 lbf/in. (2.6 to 4.4 N/cm) E&D aluminum: 0.5 to 1.5 lbf/in. (0.9 to 2.6 N/cm) Fruehauf pre-painted panels: 0.5 to 1.5 lbf/in. (0.9 to 2.6 N/cm)
Tensile Strength	6.6 lbs/in. at 73°F (1.18 kg/cm at 23°C)
Chemical Resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water (does not include immersion) Resists occasional fuel spills
Flammability	Go to the online product catalog at 3M.com/graphics or call 3M at 1-800-328-3908.

Application Characteristics

Characteristic	Value
Finished Graphic Application Recommendation	Surface type: Flat and simple curves Substrate type: Transparent substrates such as acrylic, glass, and polycarbonate Application method: Dry Application temperature (air and substrate): 50°F to 100°F (10°C to 38°C)
Applied Shrinkage	0.015 in. (0.4 mm)
Temperature Range After Application	-30°F to +150°F (-25°C to +66°C) (Though not for extended periods of time at the extremes.)
Graphic Removal	Ultra removable from most surfaces within the expected performance life. See 3M Instruction Bulletin 6.5 for removal techniques.

Factors Affecting Graphic Performance Life

The actual performance of a graphic is affected by:

- Complete ink drying or curing
- The combination of graphic materials used
- Selection, condition, and preparation of the substrate
- Surface texture
- Application methods
- Environmental conditions
- Angle and direction of sun exposure
- Cleaning and maintenance methods
- Removal methods and conditions

Graphics Manufacturing

CAUTION

Always read the manufacturer's instructions for safe operation before using any equipment.

Inkjet Printing

Always read and follow the ink manufacturer's written instructions on usage.

Total Ink Coverage

The maximum recommended total ink coverage for this film is:

- **270%** when printed entirely with approved 3M solvent inkjet inks.
- **280%** when printed entirely with approved 3M UV inkjet inks.
- **280%** when printed entirely with approved 3M latex inkjet inks.

Do NOT exceed the recommended total ink coverage for this product. Having too much total physical ink on the product results in media characteristic changes, incomplete drying, overlamine lifting, and/or poor graphic performance. For additional details about total ink coverage, refer to the 3M product and instruction bulletins for 3M inks, available on [3Mgraphics.com](https://www.3mgraphics.com).

Completely Dry Graphics

NOTE

Incomplete drying or curing can result in graphic failure including curling, increased shrinkage, and adhesion failure, which are not covered under any 3M Graphics warranty.

See the ink's 3M product and instruction bulletins for more details.

Cutting

See [3M Instruction Bulletin Production: Cutting](#) for sheeting, scoring, and film cutting details.

Graphic Protection

Graphic protection may improve the appearance, performance, and durability of the graphic. Click on the graphic protection options listed in this product bulletin or see the [3M Graphics Materials Product Catalog](#), for more information.

NOTE

During installation, scratches may occur on films without graphic protection.

Application Tapes

There are two types of application tapes. See [3M Instruction Bulletin Application: 3M™ Application Tapes for Graphic Films](#) to determine what application tape is recommended for your 3M Graphics Products. Finished graphics eligible for any 3M warranty must be constructed using approved 3M Graphics Products. See the [3M Graphics Warranty Bulletin](#) for more details.

Premasking Tape

Premasking tape increases stiffness during application while preventing stretching and damage. Use when little or no liner is exposed. See [3M Instruction Bulletin Application: 3M™ Application Tapes for Graphic Films](#) for complete details.

Prespacing Tape

Prespacing tape holds cut and weeded letters or graphics in place during application and after removal of the film liner, while preventing stretching and damage. Use when large amounts of liner are exposed. See [3M Instruction Bulletin Application: 3M™ Application Tapes for Graphic Films](#) for complete details.

Application and Installation

Stretchability

Many finished graphic constructions can be stretched without primer or relief cuts while maintaining lift resistance.

- For automobiles, vans, and buses, see [3M Instruction Bulletin Application: Vehicles](#) for details and exceptions.
- For straight trucks, semi-trucks, and semi-trailers, see [3M Instruction Bulletin Application: Trailers](#) for details and exceptions.

Tape Primer 94

3M recommends using 3M™ Tape Primer 94 to maximize a graphic's bond to the substrate in any areas that will be stretched, particularly on the edges of the film.

Maintenance and Cleaning

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline). See [3M Instruction Bulletin Maintenance](#) for details.

Removal

Removal does not require heat and/or chemicals. 3M makes no claims as to the speed of removal. See [3M Instruction Bulletin Removal](#) for details.

Shelf Life, Storage, and Shipping

Shelf Life

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

Processing the film changes its shelf life to **one year** from the processing date, but no more than three years from the manufacturing date.

Storage Conditions

- 40°F to 100°F (4°C to 38°C)
- Out of sunlight
- Clean, dry area
- Original container
- Bring the film to room temperature before use

Shipping Finished Graphics

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

3M Related Literature

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

- [3M Instruction Bulletin Production: Lamination](#)
- [3M Instruction Bulletin Production: Cutting](#)
- [3M Instruction Bulletin Application: Vehicles](#)
 - Complete the 3M Pre-Installation Inspection Record found in this instruction bulletin prior to manufacturing or applying a graphic to an automobile, van, or bus.
- [3M Instruction Bulletin Application: Trailers](#)
- [3M Instruction Bulletin Application: General Installation Techniques](#)
- [3M Instruction Bulletin Application: Walls](#)
- [3M Instruction Bulletin Application: Watercraft](#)
 - Complete the 3M Pre-Installation Inspection Record found in this instruction bulletin prior to manufacturing or applying a graphic to a watercraft.
- [3M Instruction Bulletin Application: Signage](#)
- [3M Instruction Bulletin Maintenance](#)
- [3M Instruction Bulletin Removal](#)

Health and Safety

Chemicals

When handling any chemical products, read the manufacturers' container labels and the safety data sheets (SDS) for important health, safety, and environmental information.

[Follow this link to obtain SDS sheets for 3M products.](#)

[Follow this link to obtain information about substances of very high concern \(SVHC\) for EU products.](#)

Tools and Equipment Usage

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

Warranty Information

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 the film was purchased. Information found at [3M.com/graphicswarranties](https://www.3m.com/graphicswarranties) includes:

- [3M Graphics Warranties Bulletin](#)
 - This bulletin contains information on limitations, exceptions, and warranty period reductions for 3M Graphics warranties. The warranty period may be reduced and stipulations may apply for certain constructions, applications, and graphic exposures as covered in this bulletin.
- [3M Graphics Warranties Selector](#)
 - Use this selector to search for your warranty coverage by 3M Graphics Product(s), Inks, Printer, Application(s), and Exposure.
- [3M™ MCS™ Global Geographical Zones](#)
 - Use this map to identify your warranty zone and determine if you are subject to reduced warranted durabilities.

Technical Information

Technical information, guidance, and other statements provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license to any intellectual property rights is granted or implied with respect to this technical information.

Product Selection and Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment, reviewing all applicable regulations and standards, and reviewing the product label and use instructions. Failure to properly evaluate, select, and use a 3M product in accordance with instructions or to meet all applicable safety regulations may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer

Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability

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Commercial Branding and Transportation

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