

Product Description

- For solvent, UV, and latex inkjet printing
- 2-mil, white, vinyl film

Product Features

- Pressure-activated adhesive for easy sliding, tacking, snap-up, and repositioning
- 3M™ Comply™ Adhesive Technology v4 with air-release channels for fast, easy, bubble-free installations
- Excellent hiding power
- Flexible; conformable with less heat (especially when paired with 3M™ Gloss Wrap Overlamine 8428G)
- Superior conformability with heat for applications on recesses and deep channels
- Removable with heat from most substrates within the Warranty Period
- Expected performance life of 10 years (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface)

Recommended Types of Graphics and End Uses

- Wraps for vehicles, straight trucks, semi-trucks, and semi-trailers; emblems or striping
- Non-vertical and horizontal vehicle wraps (when protected with specified 3M overlaminates)
- Walls, and indoor and outdoor graphics and signs, including point-of-purchase and displays
- Watercraft graphics (above the static water line only)
- Bus and transit graphics
- Small format original equipment manufacturer's (OEM) decorative and identification graphics, cautionary and safety labeling

When constructed and used as described in this bulletin, these types of graphics and end uses may be warranted by the 3M™ MCS™ Warranty or the 3M Performance Warranty. Read the entire bulletin for details.

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.

OEM Inkjet Inks and Printers for the 3M Performance Warranty

See the [3M Performance Warranty Matrix](#) for a complete list of compatible OEM inkjet inks and printers approved by 3M for use with the base film described in this bulletin and for the creation of completed graphics that may be eligible for the 3M Performance Warranty.

Graphic Protection

- [3M™ Scotchcal™ Gloss Overlamine 8418G](#)
- [3M™ Gloss Wrap Overlamine 8428G](#)
- [3M™ Scotchcal™ Gloss Overlamine 8518](#)
- [3M™ Scotchcal™ Luster Overlamine 8519](#)
- [3M™ Scotchcal™ Matte Overlamine 8520](#)
- [3M™ Scotchcal™ Gloss Overlamine 8528](#) with non-vertical vehicle warranty
- [3M™ Envision™ Gloss Wrap Overlamine 8548G](#) with non-vertical vehicle warranty
- [3M™ Envision™ Luster Wrap Overlamine 8549L](#) with non-vertical vehicle warranty
- [3M™ Envision™ Matte Wrap Overlamine 8550M](#) with non-vertical vehicle warranty
- [3M™ Scotchcal™ Ultra Matte Overlamine 8915](#)
- [3M™ Wrap Overlamine Series 8900](#)

Other Products

- [3M™ Edge Sealer 3950](#)
- [3M™ Edge Sealer Tape 8914](#)

Certificate of 3M™ MCS™ Warranty

Graphic manufacturers who produce finished graphics using the approved combinations of 3M Graphics Products, MCS Warranty Inks and Printers may register to be certified to offer the 3M™ MCS™ Warranty. Only graphic manufacturers having a current Certificate of 3M™ MCS™ Warranty are eligible to extend this warranty to their customers.

NOTE

For non-digitally printed finished graphics, check your eligibility for the 3M™ MCS™ Warranty by viewing the warranty period found within this product bulletin or by using the warranty selector at www.3mgraphics.com/warranties.

Characteristics

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

Physical Characteristics

Characteristic	Value
Material	Cast vinyl
Film Color	White, opaque
Thickness	Without adhesive: 2 mil (0.05 mm) With adhesive: 3 mil to 4 mil (0.08 mm to 0.10 mm)
Adhesive	Pressure-activated (slide, tack, snap-up, reposition) with air release channels
Adhesive Color	Gray
Liner	Polyethylene-coated paper
Typical Adhesion 24 Hours After Application (ASTM D3330-04)	ABS: 3 to 4 lbf/in. (5.3 to 7.0 N/cm) Aluminum, etched and degreased: 4 to 5 lbf/in. (7.0 to 8.8 N/cm) Automotive clear coats: 2 to 3 lbf/in. (3.5 to 5.3 N/cm) Painted aluminum: 2 to 3 lbf/in. (3.5 to 5.3 N/cm)
Tensile Strength (ASTM D882-18)	5 to 6 lbf/in. at 73°F (8.8 to 10.5 N/cm at 23°C) minimum
Elongation (ASTM D3759-05)	100% minimum at 73°F (23°C)
Chemical Resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water (does not include immersion)

Application Characteristics

Characteristic	Value
Finished Graphic Application Recommendation	Surface type: Flat, simple curves, compound curves, deep channels Substrate type: ABS, resins, chrome, glass, paint Application Method: Dry Application temperature (air and substrate): • Flat without rivets: 40°F to 100°F (4°C to 38°C) • Curves or corrugations with rivets: 50°F to 100°F (10°C to 38°C) • Compound curves and/or watercraft: 60°F to 90°F (16°C to 32°C)
Temperature Range After Application	-65°F to 225°F (-54°C to 108°C) (Though not for extended periods of time at the extremes.)
Applied Shrinkage (FTM14)	<15 mil (<0.38 mm)
Graphic Removal	Removable with heat from most substrates within the Warranty Period at 50°F (10°C) minimum (air and substrate).

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.

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: Graphic Design, Handling, and Storage
- 3M Instruction Bulletin Production: Lamination
- [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: 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: General Installation Techniques](#)
- [3M Product and Instruction Bulletin V-Tools](#) 3M™ Vehicle Channel Applicator Tools

NOTE

UV inkjet inks may crack if too much heat is used during graphic application to complex curves and deep contours as well as around rivets. When using heat during application, ensure the film's surface temperature does NOT exceed 212°F (100°C). For best results, **always do a test application** of a printed graphic to determine how much heat can be used without damaging the image.

NOTE

3M recommends using additional heat in the post-application process for vehicle graphics. During this process, 3M recommends using only a heat gun to ensure the film surface temperature reaches a minimum of 200°F (93°C) and does not exceed 225°F (107°C).

Application

Pressure-activated Adhesive

The pressure activated adhesive on this film offers:

- smooth sliding into position on a substrate;
- fast finger tacking to check positioning; and
- easy snap-up and repositioning when you need it.

The **snap-up and reposition feature is lost:**

- when firm pressure with a squeegee or other application tool is applied;
- at application temperatures above 100°F (38°C) even if only light finger pressure was used for tacking; or
- if any part of the film is removed from the original liner and reapplied to the same or another liner.

Working with Non-Visible Air Release Channels

Air release channels are a characteristic of films with Comply™ adhesive that allow trapped air to exit through the edges of the graphic.

- The channels will be damaged and effective air removal affected if you remove and attempt to change liners or reapply the same liner.
- For the best results, always work from the center out to the edges of the graphic to allow trapped air to exit through the air release channels. If the channels are closed off by firm pressure and air is trapped, use an air release tool to help remove air bubbles. See [3M Instruction Bulletin 5.4](#) for details.

Stretchability

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

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

3M™ Tape Primer 94 and Adhesion Promoter 111

3M recommends using primer where the film will be stretched, particularly on the edges of the film, to maximize a graphic's bond to its substrate.

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 may require heat. The ease and rate of removal depends on a number of factors. 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.

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™ 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

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Commercial Branding and Transportation

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