

Ideal for Stainless Steel Substrates

Product Description

- 2-mil cast vinyl film
- Designed to adhere to stainless steel surfaces
- For screen printing and cut graphics only

Product Features

- Specifically formulated for use on stainless steel
- Pressure-activated adhesive for easy sliding, tacking, snap-up and repositioning
- Flexible, conforms to moderate curves, corrugations and rivets
- Permanent film
- Expected Performance Life of 10 years (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface in a non-abusive environment)

Recommended Types of Graphics and End Uses

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

- Outdoor stainless steel applications
- Commercial vehicle and fleet graphics, emblems or striping
- Bus graphics
- Standard vehicle graphics
- Rail graphics

Recommended Compatible Products

This section provides a list of products that are approved by 3M for use with the base film covered in this Bulletin, and used for the creation of a graphic that is covered by the 3M™ MCS™ Warranty. Refer to the Product and Instruction Bulletins listed in 3M-Related Literature at the end of this Bulletin for more information about the compatible products.

See the **Warranty Information** section to determine which compatible products are approved for your graphic construction.

Screen Printing Inks

- [3M™ Screen Printing Ink Series 1900](#) line color and four color
- [3M™ Screen Printing UV Ink Series 9800](#) line color and four color

Screen Printing Graphic Protection Options

- [3M™ Print Gloss Clear 1920DR](#)
- [3M™ Print Low Gloss Clear 1930](#)
- [3M™ Print Low Gloss Clear 9730UV](#)
- [3M™ Print UV Gloss Clear 9740i](#)
- [3M™ Print UV Gloss Clear 9800CL](#)

Other Products

- [3M™ Edge Sealer 3950](#)

Application Tapes

See [3M Instruction Bulletin AT-1](#) to determine which application tape is recommended for your film or finished graphic.

Quick Links

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

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

Characteristics

These are typical values for unprocessed product; processing may change the values.

Physical Characteristics

Characteristic	Value
Film	Cast Vinyl
Color	White, opaque - custom colors available on request
Thickness	Without adhesive: 2 mil (0.05 mm) With adhesive: 3 to 4 mil (0.08 to 0.10 mm)
Adhesive Type	Pressure activated (slide, tack, snap up and reposition)
Adhesive Color	Gray
Liner	Polyethylene-coated paper
Adhesion, Typical 24 hours after application	Stainless steel: 3 ±1 lbf/inch (13 ±4 N/25 mm)
Tensile Strength	5 pounds/inch at 73°F (0.9 kg/cm at 23°C) minimum
Chemical Resistance	<ul style="list-style-type: none"> • Resists mild alkalis, mild acids and salt • Excellent resistance to water (does not include immersion)

Application Characteristics

Characteristic	Value
Finished Graphic Application Recommendation	<p>Surface type: Flat, with and without rivets; corrugated; simple curves; moderate compound curves.</p> <p>Substrate type: Stainless steel</p> <p>Application temperature (air and substrate):</p> <ul style="list-style-type: none"> • 50° to 100°F (10° to 38°C) flat surfaces without rivets • 55° to 100°F (13° to 38°C) flat, curved or corrugated surfaces with rivets <p>Note: Cut completely around all rivets on stainless steel substrates.</p>
Temperature Range After Application	-40° to +200°F (-40° to +93°C) Not for extended periods of time at the extremes
Graphic Removal	Permanent

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](https://www.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, applications, and graphic exposures as covered in this Bulletin.
- [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](https://www.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.

Additional Limitations

See the [3M Graphics Warranties Brochure](#) at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

Warranty Period for Finished Graphics, in Years

Graphic Type definitions:

RAIL = Railcar Graphics

VEH = Vehicle, RV, Straight Truck, Semi-Tractor and Semi-Trailer Graphics

Screen Printing

-10, -12

Graphic Protection	No Printing		SOLVENT Ink Series 1900		UV Ink Series 9800		UV Ink Series 9800 Metallic	
	VEH	RAIL	VEH	RAIL	VEH	RAIL	VEH	RAIL
1920DR, Air Dry	—	—	5	5	—	—	—	—
1920DR, Oven Dry	—	—	6	6	—	—	—	—
1930	—	—	2	2	—	—	—	—
9740i	—	—	6	6	7	7	5	—
9730UV	—	—	3	3	3	3	—	—
9800CL	—	—	—	—	5	5	5	—
None	7	8	—	—	—	—	—	—

Custom Colors

Graphic Protection	No Printing		SOLVENT Ink Series 1900		UV Ink Series 9800		UV Ink Series 9800 Metallic	
	VEH	RAIL	VEH	RAIL	VEH	RAIL	VEH	RAIL
1920DR, Air Dry	—	—	5	—	—	—	—	—
1920DR, Oven Dry	—	—	6	—	—	—	—	—
1930	—	—	2	—	—	—	—	—
9740i	—	—	6	—	6	—	5	—
9730UV	—	—	3	—	3	—	—	—
9800CL	—	—	—	—	5	—	5	—
None	6	6	—	—	—	—	—	—

Custom Metallics

Not Warranted

General Warranty

Stipulations for 3M™ MCS™ Warranty

These stipulations apply to graphics covered by the 3M™ MCS™ Warranty. General provisions for these stipulations are covered in the [3M Commercial Graphics Warranty Brochure](#) at 3Mgraphics.com.

1. Reduced Warranty Period for Other Graphic Exposures

For other graphic exposures, multiply the Warranty Period (in years) for your graphic construction as shown in the applicable Warranty Period Tables, Section F.(1), by the percentage shown for the intended graphic exposure. See the [3M Graphics Warranties Bulletin](#) for the graphic exposure definitions.

If the Graphic Exposure is:	Use this Percentage of U.S. Vertical Exposure, Warranty Period	Calculation Examples
Corrugations	50% (0.5)	0.5 × 7 years = 3.5 years 0.5 × 4 years = 2.0 years
Desert Southwest Vertical	70% (0.7)	0.7 × 7 years = 4.9 years 0.7 × 4 years = 2.8 years
Non-vertical	0%	0

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by all of the following:

- The combination of graphics materials used.
- Ink formulation (screen printing).
- 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

IMPORTANT NOTE

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

Screen Printing

Formulations and processing conditions can affect ink durability. Carefully follow limitations of specific inks and the instructions in the appropriate Product and Instruction Bulletins. Refer to the 3M-Related Literature section.

Cutting

See [Instruction Bulletin 4.1](#) 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 Product Bulletin or see the [3M Graphics Market Product Catalog](#), for more information.

CAUTION

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

Application Tapes

There are two types of application tapes. See [3M Instruction Bulletin AT-1](#) to determine which 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

Install the film using the dry application method.

Note: Do not use a detergent and water or a commercial application liquid to position the graphic on a vehicle.

Note: Cut completely around all rivets on stainless steel substrates.

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

- [3M Instruction Bulletin 5.4](#) Application, Fleet Trucks.
- [3M Instruction Bulletin 5.5](#) Application, General Procedures for Interior and Exterior Dry Application

Substrate Preparation

Stainless steel must be cleaned according to the recommendations in [Instruction Bulletin 5.1](#).

Pressure-activated Adhesive

The pressure-activated adhesive on this film offers:

- Smooth sliding into position on a substrate;
- Fast finger tacking to check position; 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.
- If any part of the film is removed from the original liner and reapplied to the same or another liner.

3M™ Tape Primer 94

3M recommends that where the film will be stretched, use primer to maximize a graphic's bond to its substrate.

Edge Sealing

Refer to [Instruction Bulletin 5.4](#) to determine when edge sealing can provide added protection to minimize edge lifting from external sources such as power washing.

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).

Chalking on unprinted film can be washed off with normal graphic cleaning methods. See [Instruction Bulletin 6.5](#) for details.

Removal

This is not a removable film. Removal requires a solvent-based or mechanical remover system. See [Instruction Bulletin 6.5](#) for details.

Shelf Life, Storage and Shipping

Shelf Life

The shelf life is **never more than 3 years** from the date of manufacture on the original box. If you process the film, the shelf life is changed to **1 year** from the processing date, but not later than the 3 year maximum from the manufacturing date. If you do not process the film, apply it within 3 years.

Storage Conditions

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

Shipping Finished Graphics

Flat (may be separated by paper), 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.

Health and Safety

CAUTION

When handling any chemical products, read the manufacturers' container labels and the Safety Data Sheets (MSDS) for important health, safety and environmental information. To obtain MSDS sheets for 3M products, go to [3M.com/SDS](https://www.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.

Commercial Solutions

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[3M.com/Graphics](https://www.3m.com/Graphics)

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