

## Series 3650

### Product Description

- For Solvent and UV Screen printing only
- 2-mil vinyl film

### Product Features

- Pressure-sensitive adhesive
- Not removable
- Available in white, black, and transparent
- Expected Performance Life of 10 years (white and black) and 8 years (transparent) (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface in a non-abusive environment)

#### Quick Links

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

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

### Recommended Types of Graphics and End Uses

- Clear window or two-way graphics
- Outdoor and indoor graphics and signs
- Information labels
- Commercial fleet/vehicle graphics and emblems
- Small format original equipment manufacturer's (OEM) decorative and identification graphics, cautionary, safety and vandal-resistant 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. Please read the entire Bulletin for details.

### Recommended Compatible Products

See [3M.com/graphicswarranties](http://3M.com/graphicswarranties) for a complete list of compatible 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 may be eligible for the 3M™ MCS™ Warranty.

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

### Graphic Protection

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

### OEM Inks and Clears (for OEM graphics only)

- Sericol™ Duracal™ UV Screen Print Inks
- Sericol™ Duracal™ Screen Print Clear (approved for OEM applications only)

**NOTE:** To identify a Sericol inks distributor, contact FUJIFILM® North America Corporation, Graphic Systems Division at [http://www.fujifilmusa.com/products/graphic\\_arts\\_printing/index.html](http://www.fujifilmusa.com/products/graphic_arts_printing/index.html); 1101 W. Cambridge Drive, Kansas City, KS 66103; Tel: 1-800-255-4562 or 913-342-4060.



## Application Tapes

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

## Other Products

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

**NOTE:** For non-digitally printed Finished Graphics, check your eligibility for the 3M™ MCS™ Warranty by viewing the Warranty Period found within the Product Bulletin or using the warranty selector at [3m.com/graphicswarranties](http://3m.com/graphicswarranties).

## Characteristics

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

### Physical Characteristics

Characteristic	Value
<b>Material</b>	Cast Vinyl
<b>Film Color</b>	<b>3650-10:</b> White <b>3650-12:</b> Black <b>3650-114:</b> Clear
<b>Thickness</b>	<b>Without adhesive:</b> 2 mil (0.05 mm) <b>With adhesive:</b> 3–4 mil (0.08–0.10 mm)
<b>Adhesive</b>	Pressure-sensitive
<b>Adhesive Color</b>	<b>3650-10:</b> Gray <b>3650-12, 3650-114:</b> Clear
<b>Liner</b>	Polyethylene-coated layflat paper
<b>Adhesion, Typical 24 hours after application</b>	<b>ABS:</b> 4–5 pounds/inch (0.72–0.89 kg/cm) <b>Acrylic enamel:</b> 4–5 pounds/inch (0.72–0.89 kg/cm) <b>Aluminum, anodized:</b> 5–6 pounds/inch (0.89–1.07 kg/cm) <b>Automotive clear coats:</b> 3–5 pounds/inch (0.54–0.89 kg/cm)
<b>Tensile Strength</b>	5 pounds/inch at 73 °F (0.9 kg/cm at 23 °C) minimum
<b>Chemical Resistance</b>	Resists mild alkalis, mild acids, and salt Excellent resistance to water (does not include immersion)
<b>Flammability</b>	Go to the On-line Product Catalog at <a href="http://3m.com/graphics">3m.com/graphics</a> or Call 1-800-328-3908.

### Application Characteristics

Characteristic	Value
<b>Finished Graphic Application Recommendation</b>	<b>Surface type:</b> Flat, with and without rivets <b>Surface type:</b> Glass, metal, paint, fiberglass reinforced plastic, rigid plastic <b>Application method:</b> Fleet and vehicles: Dry Windows: Wet All other surfaces: Wet or dry <b>Application temperature:</b> 50 °F to 100 °F (10 °C to 38 °C), air and substrate
<b>Temperature Range After Application</b>	-65 to +225 °F (-54 to +107 °C) Not for extended periods of time at the extremes
<b>Graphic Removal</b>	Not removable

## 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 that 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 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.
- [3M Graphics Warranties Selector](#)
  - Use this selector to search for your vertical warranty period by product type, ink type, film name, and/or 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 [3M.com/graphicswarranties](https://www.3m.com/graphicswarranties).

### Limitation of Liability

Except where prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED IN THE 3M GRAPHICS WARRANTIES BULLETIN), 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 [3M.com/graphicswarranties](https://www.3m.com/graphicswarranties), for vertical warranty period information specific to your film.

### Additional Limitations

See the 3M Graphics Warranties Bulletin at [3MGraphics.com/warranties](https://www.3m.com/graphicswarranties), for terms, additional limitations of your warranty, if any, and limitations of liability.

## 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.

## Cutting

See [3M 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.

### IMPORTANT NOTE

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

## Application Tapes

There are two types of application tapes. See [3M Instruction Bulletin AT-1](#) to determine what application tape is recommended for the 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 2.1](#) Design of graphics.
- [3M Instruction Bulletin 4.22](#) Lamination Basics for Inkjet Printed Graphics.
- [3M Instruction Bulletin 5.4](#) Application, Fleet Trucks.
- [3M Instruction Bulletin 5.42](#) Application, Special Considerations for 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 5.5](#) Application, General Procedures for Interior and Exterior Dry Application.
- [3M Instruction Bulletin 5.6](#) Application Wet Method for Translucent, Inkjet, Screen Printed and Cut Graphics
- [3M Instruction Bulletin 6.5](#) Storage, Handling, Maintenance, and Removal

## Stretchability

Many finished graphic constructions can be stretched without primer or relief cuts and maintain lift resistance.

- For Straight trucks, semi-trucks and semi-trailers, see [3M Instruction Bulletin 5.4](#) for details and exceptions.

## 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 6.5](#) for details.

## Removal

These films are not removable. See [3M 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.

### Storage Conditions

- 40° to 100 °F (4° 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 6 inch (15 cm) or larger core. This helps prevent the application tape, if used, from popping off.

## 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](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 manufacturer's instructions for safe operation.

### Commercial Solutions

3M Center, Building 220-12E-04  
St. Paul, MN 55144

1-800-328-3908  
[3M.com/Graphics](https://www.3m.com/Graphics)

© 3M 2020. All rights reserved.  
3M, Scotchcal, and MCS are trademarks of 3M. Used under license in Canada.  
All other trademarks are property of their respective owners.  
Revision L, February 2020 Please recycle.

