

IJ3650-10
IJ3650-114**Quick Links**[3M Graphics Warranties](#)
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- 2-mil, opaque white and clear, translucent films
- For Solvent, UV, and Latex Inkjet Printing

Product Features

- Pressure sensitive adhesive
- Permanent
- Expected Performance Life of 10 years (white) 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)

Recommended Types of Graphics and End Uses

- Cut graphics or single panel graphics and signs
- Film IJ3650-114 (transparent) vertical graphics for:
 - Indoor and outdoor graphics and signs for windows
 - Two way graphics
 - Backlit graphics
 - First and second surface applications

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 Guarantee. Please read the entire Bulletin for details.

Recommended Compatible Products

See 3Mgraphics.com/warranties 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 or 3M Performance Guarantee.

OEM Inkjet Inks and Printers for the 3M Performance Guarantee

See the [3M Performance Guarantee Matrix](#) for a complete list of compatible OEM Inkjet Inks and Printers that are approved by 3M for use with the base film covered in the Bulletin and used for the creation of a graphic that may be eligible for the 3M Performance Guarantee.

Graphic Protection

- [3M™ Scotchcal™ Luster Overlamine 3619](#)
- [3M™ Scotchcal™ Matte Overlamine 3620](#)
- [3M™ Scotchcal™ Gloss Overlamine 3658G](#)
- [3M™ Scotchcal™ Matte Overlamine 3660M](#)
- [3M™ Scotchcal™ Gloss Overlamine 8518](#)
- [3M™ Scotchcal™ Luster Overlamine 8519](#)
- [3M™ Scotchcal™ Matte Overlamine 8520](#)
- [3M™ Scotchcal™ Luster Overlamine 8908](#)
- [3M™ Scotchcal™ Matte Overlamine 8909](#)
- [3M™ Scotchcal™ Ultra Matte Overlamine 8915](#)
- [3M™ Screen Print Gloss Clear 1920DR](#)
- [3M™ Screen Print UV Gloss Clear 9740i](#)

Application Tapes

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

Other Products

- [3M™ Edge Sealer 3950](#)

Certificate of 3M™ MCS™ Warranty

Graphics manufacturers who produce graphics made with all 3M Graphics Products, including 3M Ink purchased through a qualified 3M Distributor or 3M Printing Partner, may register to be recognized with a Certificate of 3M™ MCS™ Warranty. Only graphics manufacturers having a current Certificate of 3M™ MCS™ Warranty are eligible to extend this warranty to their customers.

Characteristics

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

Physical Characteristics

Characteristic	Value
Material	Vinyl
Film Color	IJ3650-10: White IJ3650-114: Transparent
Thickness	Without adhesive: 2 mil (0.05 mm) With adhesive: 3 – 4 mil (0.08 – 0.1 mm)
Adhesive	Pressure-sensitive, permanent
Adhesive Color	IJ3650-10: Gray IJ3650-114: clear
Liner	Polyethylene-coated paper
Tensile Strength	5 pounds/inch at 73 °F (0.9 kg/cm at 23 °C) minimum

Characteristic	Value
Adhesion, Typical <i>24 hours after application</i>	IJ3650-10: ABS: 4 pounds/inch (0.7 kg/cm) Acrylic enamel: 4 pounds/inch (0.7 kg/cm) Fruehauf pre-painted panels: 4 pounds/inch (0.7 kg/cm) Aluminum, anodized: 8 pounds/inch (1.4 kg/cm) Chrome: 5 pounds/inch (0.9 kg/cm) IJ3650-114: Acrylic and uncoated, clear polycarbonate: 4 pounds/inch (0.7 kg/cm)
Chemical Resistance	<ul style="list-style-type: none"> Resists mild alkalis, mild acids, and salt Excellent resistance to water (<i>does not include immersion</i>)
Flammability	ASTM E84 reports: IJ3650 , or go to the On-line Product Catalog at 3Mgraphics.com

Application Characteristics

Characteristic	Value
Finished Graphic Application Recommendation	Surface type: Flat, with and without rivets Surface type: Glass, metal, paint, fiberglass reinforced plastic, rigid plastic Application method: Dry or dry laminate - IJ3650-10 Wet - IJ3650-114 Application temperature: 50 °F to 100 °F (10 °C to 38 °C) air, substrate
Applied Film Shrinkage	0.015 inch (0.4 mm)
Finished Graphic Exposure Temperature	-65 to +225 °F (-54 to +107 °C) (not for extended periods of time at the extremes)
Graphic Removal	Permanent

Warranty Information

Warranty Coverage Overview

The warranty coverage for each graphic is based on the user both reading and following all applicable and current 3M Product and Instruction Bulletins. The warranty period for eligible graphics is as stated in the 3M Graphics Warranties Matrices found at [3MGraphics.com/warranties](#), at the time that the film was purchased. The warranty period may be reduced and stipulations may apply for certain constructions and applications, as covered in the 3M Graphics Warranties Bulletin found at [3MGraphics.com/warranties](#).

The warranties set forth in the Warranty 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](https://www.3MGraphics.com/warranties), for warranty period information specific to your film.

Additional Limitations

See the 3M Graphics Warranties Bulletin at [3MGraphics.com/warranties](https://www.3MGraphics.com/warranties), 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 correct combinations of 3M-recommended graphics products.
- the ink formulation.
- 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.

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 with all approved 3M solvent inkjet inks.
- **280%** when printed with all approved 3M UV inkjet inks.
- **280%** when printed with all approved 3M latex inkjet inks.
- **250%** when printed on the Mimaki JV5 Series printer with HS ink series ([3M Performance Guarantee](#)).

Do not exceed the recommended total ink coverage for the ink series used on this film. Having too high a total physical ink amount on the film 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 Bulletin for 3M inks or the [3M Performance Guarantee Matrix](#) for OEM inks.

Completely Dry Graphics

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.

Construction Options

See [3M Instruction Bulletin 4.26](#) for detailed information.

Maximum Three Layers of Film

IMPORTANT NOTE

A third layer of film on any one surface is warranted only if the top layer is an approved overlamine and no more than two layers of any film are even with the edges of the substrate.

NEVER place an overlap over an existing overlap, which creates four layers.

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 the "Recommended Compatible Products" on page 1 or 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 recommend 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 4.60](#). 3M™ Envision™ Translucent and Diffuser Films. Guidelines for Backlit Signs.
- [3M Instruction Bulletin 5.1](#). Select and Prepare Substrates for Graphic Application
- [3M Instruction Bulletin 5.30](#). Application of 3M Pressure-Sensitive Films to 3M Flexible Substrates.
- [3M Instruction Bulletin 5.36](#). Application Techniques for Automobiles, Vans and Buses. 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 5.5](#). Application, General Procedures for Interior and Exterior Dry Application.
 - For roll application, the dry method is acceptable.
- [3M Instruction Bulletin 5.7](#). Application, Wet Method for Translucent, Inkjet, Screen Printed and Cut Graphics.
 - For applications by hand, the detergent and water application method is recommended for this pressure-sensitive film. Dry application by hand may leave dark streaks or bubbles that could be visible in transmitted light.
- [3M Instruction Bulletin 6.5](#). Storage, Handling, Maintenance, and Removal of Films and Sheetings.

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 6.1](#) for details.

Removal

Removal requires heat and/or chemicals. 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 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 print room temperature before using

Shipping Finished Graphics

Flat, or rolled printed side out on 5 inch (13 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 (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.

Bulletin Change Summary

For the most current 3M Technical Information available to successfully use this product, please view this Bulletin electronically and click on the blue underlined links to view the relevant documents. This Bulletin has been substantially changed to remove warranty information and replace it with references to the new Graphics Warranties website. Please read the entire Bulletin thoroughly.

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