

## Wide Width Flexible Substrate

### Product Description

- 22-mil, white pigmented vinyl substrate with a polyester scrim
- For Inkjet Direct Printing and Cut Film Decoration

### Product Features

- Smooth front surface with a semi-gloss finish
- Decorate first or second surface with inkjet direct printing or first surface with cut film
- Wide width, splice free for seamless backlit signs
- Medium to long-term durability
- Cost-effective
- Expected Performance Life of 6 years (unwarranted period for undecorated (no direct print or applied film) substrate with no graphic protection and properly mounted in a flat, vertical orientation for outdoor signage)

### Recommended Types of Graphics and End Uses

- Indoor and outdoor, day and night graphics for backlit signs mounted in a properly designed cabinet or frame

Typically for best result, 3M recommends:

- [3M™ Envision™ Flexible Substrate FS-1](#) for LED applications
- [3M™ Panagraphics™ III Wide Width Flexible Substrate](#) for fluorescent lighting 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. 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.

#### IMPORTANT NOTE

Be sure the printer you are using is capable of supporting the weight and roll diameter of 3M™ Panagraphics™ III Flexible Substrate to avoid damaging the printer.

To estimate the weight, multiply the roll width by 54.5 oz (61 kg).

Example: 59 (width in inches) X 54.5 = 3125 oz. (201 lb)

1.5 (width in meters) X 61 = 91.5 kg

### Recommended Compatible Products for 3M™ MCS™ Warranty

#### Optimum Choice for Fluorescent Lighting Applications

- [3M™ Scotchcal™ Translucent Film Series 3630](#)
- [3M™ Scotchcal™ Translucent Film IJ3630-20](#)

#### 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.

## Optimum for LED Applications

- [3M™ Scotchcal™ Translucent Film Series 3730](#)
- [3M™ Scotchcal™ Translucent Film IJ3730-50](#)
- [3M™ Scotchcal™ Translucent Film IJ3730-60](#)

## Light Management Films

- [3M™ Blockout Film 3635-20B](#)
- [3M™ Blockout Film 3635-22B](#)
- [3M™ Day/Night Films 3635-91](#)
- [3M™ Dual-Color Film Series 3635-200](#)
- [3M™ Diffuser Film 3635-30](#)
- [3M™ Diffuser Film 3635-70](#)
- [3M™ Envision™ Diffuser Film 3735-50](#)
- [3M™ Envision™ Diffuser Film 3735-60](#)

## Low Cost Translucent Signage

- [3M™ Scotchcal™ Opaque Film Series 50](#) *for unwarranted graphics only*

## Graphic Protection for Direct Print Graphics

- [3M™ Scotchcal™ Luster Overlaminates 3619](#)
- [3M™ Scotchcal™ Matte Overlaminates 3620](#)
- [3M™ Scotchcal™ Gloss Overlaminates 3658G](#)
- [3M™ Scotchcal™ Matte Overlaminates 3660M](#)
- [3M™ Scotchcal™ Gloss Overlaminates 8518](#)
- [3M™ Scotchcal™ Luster Overlaminates 8519](#)
- [3M™ Scotchcal™ Matte Overlaminates 8520](#)
- [3M™ Scotchcal™ Ultra-Matte Overlaminates 8915](#)

**NOTE:** If you are decorating the substrate with film series 3630 or 3730 or films IJ3630 or IJ3730, refer to your decorating film's 3M Product Bulletin for the recommended Graphic Protection options.

## Application Tapes

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

## Certificate of 3M™ MCS™ Warranty

Graphic manufacturers who produce digitally printed 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 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 the Product Bulletin or using the warranty selector at [www.3m.com/graphicswarranties](http://www.3m.com/graphicswarranties).

## Characteristics

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

## Characteristics

Characteristic	Specification	Test Method
<b>Substrate</b>	White-pigmented vinyl with a polyester scrim	
<b>Thickness</b>	20–24 mil (0.51–0.60 mm)	Micrometer
<b>Roll Sizes</b>	A variety of widths ranging from 59 inches to 197 inches x 164 feet (150 cm to 500 cm x 50 m)	
<b>Light Transmission</b>	23% ± 3%	Densitometer
<b>Service Temperature Range</b>	-22 to +158 °F (-30 to +70 °C) (not for extended periods of time at the extremes)	N/A
<b>Installation Temperature</b>	45 °F (7 °C) or higher See "Attaching and Tensioning" on page 8	N/A
<b>Tensile Strength (warp &amp; weft)</b>	Min 100 lbs/in (440 N/25 mm)	ASTM D751-06
<b>Elongation (warp &amp; weft)</b>	Max 50%	ASTM D751-06
<b>Tear Strength</b>	<b>Warp:</b> Typical 30 lbs (135 N) <b>Weft:</b> Typical 20 lbs (90 N)	ASTM D751-06
<b>Thread Count (warp &amp; weft)</b>	500 denier 18 ± 1 threads per inch (threads/ 25 mm)	ASTM D1577-07 FS 191A 5050
<b>Interfacial Adhesion</b>	Min 8 lbs/in (35N/25 mm)	ASTM D751-06
<b>Weight</b>	19 ounces/sq. yd (650 gf/sq. m) See Important Note about roll weight in "Recommended Types of Graphics and End Uses" on page 1	Balance
<b>Maximum Finished Size</b>	625 sq. ft (58 sq. m)	N/A
<b>60 degree Gloss</b>	5–15 at 60° gloss	ASTM D2457
<b>Whiteness Index (reflective)</b>	Min 90	ASTM E313
<b>Flammability</b>	ASTM E84 reports: <a href="#">PIII</a> , or go to the On-line Product Catalog at <a href="http://3Mgraphics.com">3Mgraphics.com</a>	ASTM E84
<b>Safety and Regulatory Recognition</b>	Call 1-800-328-3908	UL Recognized Component. Tested and found to comply with UL 879 - Standard for Electric Sign Components. US & Canada file E65361.

## Warranty Information

### Special Defect Coverage and Warranty Limitations for 3M Flexible Substrates

The following Defect Coverages and Warranty Limitations apply to 3M Flexible Substrates and are in addition to other Defect Coverages and Warranty Limitations described in this document.

- **Seam or Splice Failure**

When using a reliable, professional hardware system that is specifically designed for mounting flexible sign materials that meets local, state, and national codes, is properly designed, and the awning or sign is installed by a professional sign installer, 3M warrants that awning or sign face seams or splices made by 3M or its approved fabricators will not separate, the facing will not delaminate, applied 3M graphics will not have excessive cracking or peeling, and the Finished Graphic will not excessively stretch, wrinkle, or sag for the applicable warranty period.

- **Blowout**

3M warrants that an internally-illuminated sign face that is 625 square feet (56.25 square meters) or smaller will not be damaged by winds up to the velocities that the sign cabinet is designed to withstand. Blowout is defined as the failure of a seam or splice, tearing of the 3M Graphics Product, or separation of a sign face from its cabinet due to wind pressure that does not affect the display cabinet or structure when 3M recommended installation procedures are followed.

- **Mildewing**

3M Flexible Substrates will not promote mildew growth, and any such growth will be non-invasive and cleanable by following the 3M-recommended cleaning instructions.

- **Wicking**

3M Flexible Substrates will resist wicking, which is the absorption of dirt and contaminants by the internal reinforcing fabric.

### Remedies and Limitations of Liability for 3M Flexible Substrates

3M does not warrant the following items in connection with 3M Flexible Substrates. Also see "Warranty Limitations" on page 6 and "Remedies and Limitations of Liability" on page 7 for the 3M™ MCS™ Warranty.

- Damage due to force majeure, such as abnormally high winds or objects being blown against the sign face
- Damage to an awning or sign face due to improper frame or sign cabinet construction, installation, or tensioning
- The reapplication of new graphics to an existing awning or sign face
- Cleaning with a pressure washer
- Wicking when the 3M Graphics Product is not discolored
- Vandalism
- Graphic failure due to inadequate substrate cleaning immediately prior to film application
- Graphic failure due to insufficient film overlaps
- Graphic failure due to not resqueegeeing all edges and overlaps of the film at least 16 hours after film application

## 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](http://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](http://3M.com/graphicswarranties).

## 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.

## Exposure Types

### U.S. Vertical Exposure

The face of the graphic is  $\pm 10^\circ$  from vertical.

### U.S. Horizontal Exposure

The face of the graphic is greater than  $10^\circ$  from vertical.

**NOTE:** Any outdoor graphic primarily located in Arizona, New Mexico, and the desert areas of California, Nevada, Utah, and Texas is subject to reduced warranties. Click [here](#) for a detailed map or go to [3Mgraphics.com/warranties](http://3Mgraphics.com/warranties). See "Reduced Warranty Period for Other Graphic Exposures" on page 5 for reduced warranty period information.

## Additional Limitations

See the 3M Graphics Warranties Bulletin at [3MGraphics.com/warranties](http://3MGraphics.com/warranties), for terms, additional limitations of your warranty, if any, information on reduced warranties for different exposures, 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

### Making Graphics with Film Series 50, 3630, 3730, IJ3630, IJ3730

Image the film according to the methods described in the related 3M Product Bulletin.

- For film application use a wet application method or dry roll lamination method.
- Apply no more than three layers (two layers of base film and an overlaminate) to the substrate.
- The minimum recommended decorating temperature is 60 °F (15 °C).

 **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.

### Backlit Ink Density

 **IMPORTANT NOTE**

Double-sided Inkjet printing allows for a balanced day/night graphic appearance. A backlit image with proper color density can be achieved by printing a single strike image directly on both the first and second surface of the substrate. The second surface print must be reversed and registered to the first surface print. Consult with your printer manufacturer for process guidance.

## Total Ink Coverage

Backlit images require greater density. This can be achieved by using the printer's double strike input mode (if available). When using this mode, you have reached the maximum total ink coverage when you can no longer obtain color consistency throughout the graphic and/or the graphic cannot be adequately dried after printing.

- **For most graphics:** 280% total ink coverage. See the Ink's Product Bulletin for more information.
  - Solvent ink: 270% total ink coverage. See the Ink's Product Bulletin for more information.
- **For three layer prints with white ink:** 660% (280% colors + 100% white + 280% colors maximum). The ink and printer combinations this is approved for are:
  - EFI™ VUTEK® QS2000, QS3200, QS3220, and QS220 Printers using 3M™ Piezo Inkjet Series 2800UV
  - EFI™ VUTEK® Pv200 Printers using 3M™ Piezo Inkjet Series 2200UV
  - EFI™ VUTEK® GS5000r Printers using EFI™ VUTEK® GSr 3M™ Premium UV Inks
- **For 1500v2, direct inkjet printing:** Printing in double strike mode is required to ensure adequate backlit color density and image durability.
- **For 4400, direct inkjet printing:** Printing in SD backlit mode is required to ensure adequate backlit color density and image durability.

Do not exceed the recommended total ink coverage for the ink series used on this product. Having too high a total physical ink amount 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 Bulletin for 3M Inks.

## Completely Dry Graphics

### IMPORTANT NOTE

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

See the specific 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 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 4.1](#) Sheeting, Scoring and Film Cutting
- [3M Instruction Bulletin 4.22](#) Lamination Basics for Inkjet Printed Graphics
- [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 5.5](#) 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.

## Attachment and Tensioning Guidelines

### Attaching and Tensioning

- 3M recommends attaching and tensioning this substrate in a cabinet at a temperature of 45 °F (7 °C) or higher, whether the work is being done in a fabricator's shop or in the field.
- Any existing attachment system used currently should be tested prior to actual application.

### Cold Temperature Field Installation

- Artificially warm the decorated substrate to at least 45 °F (7 °C) before attaching or tensioning the sign face in a cabinet or frame.
- Do not stress the decorated substrate by folding, crimping, creasing, or forming it around corners. In cooler temperatures, the films applied to the substrate become less flexible and may crack if handled roughly.
- Check and re-tension large sign faces as needed when the temperature warms to more than 60 °F (15 °C). A large sign face is one that is more than 275 square feet (25 sq. m) and has a height that exceeds 11 feet (3.3 m) or a width that exceeds 25 feet (7.5 m).



## Maintenance and Cleaning

Use only a mild detergent and water for cleaning. Clean the finished graphic annually. Clean the graphic more often in unusually dirty environments to maintain a good appearance. See [3M Instruction Bulletin 6.1](#) for details.

## Shelf Life, Storage and Shipping

### Shelf Life

The shelf life of this product is **1 year from the date of manufacture**. For best results, store under the following Storage Conditions:

- Out of direct sunlight
- In a cool, dry environment
- Original container

### **IMPORTANT NOTE**

Bring the film to print room temperature before using

### Rolling a Finished Sign Face for Shipping

Follow these guidelines if the graphics already have been applied to the substrate.

Selecting a Core Size

- For a graphic with a single film layer, use a core at least 3 inches (7.6 cm) in diameter.
- For a graphic with multiple film layers, use a core at least 6 inches (15 cm) in diameter.

Rolling the Graphic

- Roll the graphic with the graphics facing out to help prevent damage.
- Do not use masking tape, which may stain the substrate, to secure the roll.

## Health and Safety

### **CAUTION**

When handling rolls beyond 3.2 meters wide it is necessary for a minimum of three points of support to prevent injury and bending of the roll.

### **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.

### **IMPORTANT NOTE**

The user is responsible for determining and complying with all applicable building codes that affect the use of materials in sign face applications, including flammability standards. For information on flammability requirements, contact your local building code officials.

## 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. Please read the entire Bulletin thoroughly.

Rev W MAY 2019:

- Updated “Shelf Life” on page 9.

Rev V JUNE-2017:

- Updated Roll Sizes in “Characteristics” on page 3.
- Added Caution “When handling rolls beyond 3.2 meters...” to “Shelf Life” on page 9

Rev U MARCH-2016:

- Updated test method listed in “Characteristics” on page 3.

Rev T SEPTEMBER-2015:

- Added 3730 to second row in warranty matrix. See “Warranty Period Matrices - Cut Film” on page 5.
- Removed reference to Instruction Bulletin 6.5. See “Application and Installation” on page 8.

Rev S JULY-2015:

- Added detail related to which printer and ink combinations are warranted for use with white ink. See “Total Ink Coverage” on page 7.

### Commercial Solutions

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

1-800-328-3908  
3M.com/Graphics

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