

## Product Description

This bulletin covers two distinct categories of light management films: blackout and day/night films.

## Product Features

- Control light transmission or achieve special effects for backlit signs
- 2 and 4-mil vinyl film
- Pressure-sensitive adhesive
- Adheres to rigid or flexible substrates
- Expected Performance Life of 7 years (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface)

Also see these other 3M light management films:

- [3M™ Envision™ Diffuser Films 3735-50 and 3735-60](#)
- [3M™ Diffuser Films 3635-30 and 3635-70](#)
- [3M™ Light Enhancement Film 3635-100](#)
- [3M™ Dual-Color Film 3635-200](#)

## Recommended Types of Graphics and End Uses

Always refer to the base film or flexible substrate's Product Bulletin and [3M Instruction Bulletin 4.26](#) for additional construction or product usage details. In general, the warranty for a first surface application on flexible substrates is the same as the translucent film.

Product	Recommended Uses	Limitations of End Uses
<b>Blockout Film 3635-20b and 3635-22b</b>	<ul style="list-style-type: none"> <li>• Internally-illuminated signs</li> <li>• Blocks out light</li> <li>• First and second surface applications</li> <li>• May be printed with <a href="#">3M™ Screen Printing Ink Series 1900</a></li> </ul>	<ul style="list-style-type: none"> <li>• Second surface applications with <a href="#">3M™ Envision™ Flexible Substrate FS-1</a> or <a href="#">3M™ Panagraphics™ III Wide Width Flexible Substrate</a></li> <li>• Not recommended for thermoforming applications</li> </ul>
<b>Day/Night Film 3635-91</b>	<ul style="list-style-type: none"> <li>• Internally-illuminated signs</li> <li>• Produce the appearance of dark graphics during the day</li> <li>• Produce the appearance of white or colored graphics at night</li> <li>• First and second surface applications</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot be printed</li> </ul>

### 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.

# 3M™ Blockout Films 3635-20b, 3635-22b 3M™ Day/Night Films 3635-91

## Characteristics

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

### Physical Characteristics

Characteristic	Value	
	Blockout Film 3635-20b and 3635-22b	Day/Night Film 3635-91
<b>Film Description</b>	3635-20b: Uniformly white on face side with a matte surface 3635-22b: Uniformly black on face side with a matte surface	3635-91: Greenish gray color 3635-0171: Charcoal gray color
<b>Light Transmission</b>	Less than 1%, typical	3635-91: 47%, typical
<b>Thickness</b>	Without adhesive: 4 mil (0.10 mm) With adhesive: 5 mil (0.13 mm)	Without adhesive: 2 mil (0.05 mm) With adhesive: 3– 4 mil (0.08 – 0.10 mm)
<b>Adhesive Type</b>	Pressure-sensitive	
<b>Adhesive Color</b>	Clear	
<b>Liner</b>	White kraft paper	
<b>Tensile Strength</b>	5 pounds/inch at 73 °F (0.9 kg/cm at 23 °C)	
<b>Chemical Resistance</b>	<ul style="list-style-type: none"> <li>Resists mild alkalis, mild acids, and salt</li> <li>Excellent resistance to water (does not include immersion)</li> </ul>	

### Application Characteristics

Characteristic	Value
<b>Finished Graphic Application Recommendation</b>	Surface type: Flat Substrate type: 3M™ Envision™ Flexible Substrate FS-1, 3M™ Panagraphics™ III Flexible Substrate, acrylic, polycarbonate, PETG (glycol-modified polyethylened terephthalate) Application method: Wet or dry Application temperature: 60 °F (16 °C) minimum air, substrate
<b>Adhesion, Typical 24 hours after application</b>	Acrylic panels; first surface of sign facing FS-1 or Panagraphics substrate: 3 pounds/inch (0.5 kg/cm)
<b>Temperature Range After Application</b>	-20 to +175 °F (-29 to +80 °C) (not for extended periods of time at the extremes)
<b>Applied Shrinkage</b>	0.015 inch (0.4 mm)
<b>Graphic Removal</b>	Permanent

## Warranty Information

### IMPORTANT NOTE

Warranty information including limitations and exceptions and warranty periods for this product can be found at [3MGraphics.com/warranties](https://www.3MGraphics.com/warranties).

## 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](http://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.
- [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 [3MGraphics.com/warranties](http://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.

## Exposure Types

### U.S. Vertical Exposure

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

### U.S. Non-Vertical Exposure

The face of the graphic is greater than  $10^\circ$  from vertical and greater than  $5^\circ$  from horizontal.

**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.

## Warranty Period Matrices - Vertical and Non-Vertical

**Table A.** Warranty Period for Finished Graphics in a Standard U.S. Exposure.

Application	Film	Ink	Graphic Protection	U.S. Vertical Sign	U.S. Non-Vertical Sign
<b>First surface application on 3M flexible substrates* or rigid substrates (acrylic, polycarbonate, PETG)</b>	3635-20b	None	None	5	0
			3640GPS 3642GPS	9	6
		Ink Series 1900	1920DR	4	0
			3640GPS 3642GPS	5	4
	3635-22b	None	None	5	0
			3640GPS 3642GPS	9	6
		Ink Series 1900	1920DR	3	0
			3640GPS 3642GPS	9	6
	3635-91	None	None	4	0
			3640GPS 3642GPS	7	4

\* The warranty for a first surface application on a 3M flexible substrate is the same as the translucent film.

### Reduced Warranty Period for Other Graphic Exposures

For other graphic exposures, determine the applicable reduced warranty period by multiplying the standard warranty period (in years) for your graphic construction as shown in the applicable warranty period tables by the percentage shown for the intended graphic exposure. See "Exposure Types" on page 3 of the 3M Graphics Warranties Bulletin for graphic exposure definitions.

**Table B. Reduced Warranty Period for Other Graphic Exposures**

If the Graphic Exposure is:	Use this Percentage of Vertical Exposure, Warranty Period	Calculation Examples
<b>Desert Southwest Vertical</b>	70%	0.7 x 7 years = 4.9 years
<b>U.S. Horizontal</b>	0%	0 x 4 years = 0 years

### 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 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



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.

### Application Tapes

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

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 2.4](#) Design of Cabinets for Light Boxes and Channel Letters
- [3M Instruction Bulletin 4.1](#) Sheeting, Scoring and Film Cutting
- [3M Instruction Bulletin 4.22](#) Lamination Basics for Inkjet Printed Graphics
- [3M Instruction Bulletin 5.5](#) 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 Sheeting

## 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

This film uses a permanent adhesive. This film is not easily or cleanly 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 manufacturer's 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](http://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.

## 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. Please read the entire Bulletin thoroughly.

### Release M MAR-2017

- Removed references to 3M™ Day/Night Film 3635-0171 throughout document.

### Release L MAY-2016:

- Added Warranty Period Information. See "Warranty Period Matrices - Vertical and Non-Vertical" on page 4.

### Release K DEC-2015:

- Updated Product Bulletin to new format.
- Removed reference to Thermoforming in "Application and Installation" on page 5.

# 3M™ Blockout Films 3635-20b, 3635-22b 3M™ Day/Night Films 3635-91

3M Commercial Solutions  
3M Center  
Building 220-12E-04  
St. Paul, MN 55144-1000  
1-800-328-3908  
Fax 651-736-4233  
[www.3M.com/Graphics](http://www.3M.com/Graphics)

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