



Scotchcal™ ElectroCut™ Graphic Film

Series 7725SE-400, Fluorescent Film

For Electronic Cutting, Solvent Screen Printing

Note: 3M's Dusted and Frosted Crystal Film Series 7725SE-300 are now called 3M™ Crystal Films and are available from [3M Architectural Markets](#).

1. Product Description

- 3.25 mil (0.08 mm) cast film in 6 glossy, opaque, fluorescent colors
- Extremely conspicuous in daylight, and activated by exposure to near ultraviolet light (but not black light)
- Offers high attention value under poor visibility, particularly at dawn or dusk
- Good electronic cutting characteristics as small as 0.5 inches (12 mm) tall.
- Printable with solvent-based screen print inks
- Good weather resistance

2. 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.

- Prespaced and electronically-cut graphics
- High visibility and weather resistant unprinted or screen printed graphics

3. Performance Overview

3M tests the performance of both individual products and finished graphic constructions. This table shows the best performance expected from this product without a Warranty Period and with a Warranty Period.

For detailed graphic construction and application options along with specific Warranty Periods, please see the Warranty Information, Section 3.

Expected Performance Life. This is the estimated period of time the product should perform satisfactorily.	
Unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface.	1 year
3M™ MCS™ Warranty. This is the maximum period of time 3M will warrant the finished graphic performance.	
Printed film with a clear coat and applied to a flat, vertical, outdoor surface.	1 year

4. Limitations of End Uses

A. Do not use the film for these end uses

3M does not normally warrant other uses or applications, but please contact us to discuss your needs or let us suggest other 3M products.

- Non-vertical applications
- Application to corrugated surfaces or surfaces with compound curves
- Thermoforming
- Using the film where black light fluorescence is required

5. Compatible Products

This Bulletin provides details about the base film, **recommended construction options, warranted durability and warranty limitations for the constructions shown in the Warranted Durability Tables**. Additional specific information about compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this bulletin.

A. Screen Printing Inks

- 3M™ Screen Printing Ink Series 1900 *line color only*
- 3M™ Screen Print Dirt Resistant Clear 1920DR

B. Other Products

- 3M™ Prespacing Tape SCPS-2
- 3M™ Premasking Tape SCPM-3

6. Characteristics

These are typical values for unprocessed product; processing may change the values. Contact your 3M representative for a custom specification.

A. Physical Characteristics

Characteristic	Description														
Film	Cast vinyl, glossy finish														
Opacity	Opaque														
Thickness	Without adhesive: 3.25 mil (0.09 mm) With adhesive: 4 mil (0.1 mm) <i>nominal</i>														
Colors	<table border="1"> <thead> <tr> <th>No.</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>404</td> <td>Yellow Orange</td> </tr> <tr> <td>405</td> <td>Yellow</td> </tr> <tr> <td>406</td> <td>Green</td> </tr> <tr> <td>407</td> <td>Blue</td> </tr> <tr> <td>413</td> <td>Fuchsia</td> </tr> <tr> <td>414</td> <td>Red Orange</td> </tr> </tbody> </table>	No.	Color	404	Yellow Orange	405	Yellow	406	Green	407	Blue	413	Fuchsia	414	Red Orange
No.	Color														
404	Yellow Orange														
405	Yellow														
406	Green														
407	Blue														
413	Fuchsia														
414	Red Orange														
Adhesive type	Pressure sensitive														
Adhesive color	Gray														
Liner	Kraft paper, white														
Tensile strength	5 pound/inch at 73°F (0.9 kg/cm at 23°C) <i>minimum</i>														
Adhesion <i>24 hours after application</i>	Acrylic: 4 pounds/inch (0.7 kg/cm) Glass: 4 pounds/inch (0.7 kg/cm) Polycarbonate: 4 pounds/inch (0.7 kg/cm)														
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water (<i>this does not include immersion</i>)														

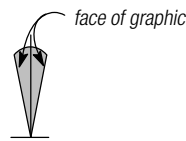
B. Application Characteristics

Characteristic	Description
Finished graphic application recommendation	Graphic orientation: Vertical Surface type: Flat with and without rivets Substrate type: Glass, acrylic, polycarbonate, fiberglass, painted metal Application method: Dry
Applied film shrinkage	0.010 inch (0.3 mm) <i>maximum</i>
Finished graphic exposure temperature	-40° to +225°F (-40° to +107°C)
Graphic removal	None, permanent

7. Definitions

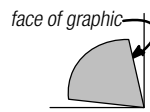
A. Exposure Types

U.S. Vertical Exposure



The face of the graphic is +/- 10° from vertical.

U.S. Non-vertical Exposure



The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal. This includes non-vertical surfaces of vehicle wraps or fleet truck and trailer graphics.

U.S. Horizontal Exposure



The face of the graphic is +/- 5° from horizontal.

U.S. Desert Southwest Exposure

Any outdoor graphic exposed to solar energy more than half of the daylight hours 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.

B. Graphic Construction

The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape.

C. Graphic Protection

Overlaminates films or clear coats used to protect the graphic and/or change gloss.

D. Graphic Types

As identified in Product Warranty Matrices

Indoor Signs

Stationary graphics applied indoors and *not* exposed to the elements.

Outdoor Signs

Stationary graphics applied outdoors and exposed to the elements.

8. Warranty Information

A. Warranty Coverage Overview

The warranty coverage for each graphic is based on the user(s) both reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranty Period stated in the base film's Product Bulletin that is current when the film was purchased. The Warranty Period may be reduced and stipulations may apply for certain constructions and applications, as covered in this Bulletin.

The following is made in lieu of all other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom or usage of trade.

B. 3M Basic Product Warranty

This product is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin and as further set forth in the [3M Commercial Graphics Warranties Brochure](#).

C. Limited Remedy

3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. These remedies are exclusive.

D. 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 ABOVE), 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 SELLER'S 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 including breach of contract, breach of warranty, negligence, strict liability, or any other legal or equitable theory.

E. Additional Limitations

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

F. 3M™ MCS™ Warranty

Subject to Stipulations set forth in Section G., below

- (1) **Warranty Period**
for Finished Graphics
in a Standard U.S. Vertical
Exposure

Finished graphics constructed with the materials specified and the exposure specified in the Warranty Period tables, below, are eligible for the 3M™ MCS™ Warranty.

Out = Outdoor Signs
In = Indoor Signs

Imaging	Warranty Period for Vertical U.S. Exposure, in Years			
	No Printing		Ink Series 1900	
Graphic Type	Out	In	Out	In
Graphic Protection	Film Colors: 404, 405, 406, 407, 413, 414			
None	1	5	—	—
1920DR	—	—	1	5

G. General Warranty Stipulations for 3M™ MCS™ Warranty

- (1) **Abrasion and Loss of Gloss**

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

Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear. However, to help maintain the appearance of your graphic, use the recommended graphic protection whenever:

- it is required for the construction and end use as shown in the Warranty Period tables.
- the graphic, **including printed vehicle graphics**, is exposed to abrasive conditions, harsh cleaners or chemicals.

- (2) **Application to Glass**

3M accepts no liability for glass breakage when using this film for window graphics. See Instruction Bulletin 5.1 for details.

- (3) **Application Outside the U.S.**

Contact the 3M organization for that country.

- (4) **Graphics Made with Components Not Sold or Recommended by 3M**

The **3M™ MCS™ Warranty** does not, under any circumstances, cover graphics made with inks, film, graphic protection and/or application tapes that are not sold or recommended by 3M.

The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include any non recommended or qualified products.

- (5) **Printed Vehicle Graphics**

Screen printed vehicle graphics require a clear to be warranted

9. Factors that Affect Graphic Performance Life

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

- Correct combination of 3M-recommended graphics products
- Selection and preparation of the substrate
- Surface texture
- Application methods
- Angle and direction of sun exposure
- Environmental conditions
- Cleaning or maintenance methods

10. Graphics Manufacturing



CAUTION

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

A. Screen Printing

Refer to the ink's Product and Instruction Bulletins.

B. Cutting

Based on cutting and weeding evaluations that used Helvetica medium upper case, the recommended minimum cutting height for text is 0.5 inch (12.7 mm). Because of the differences in electronically-controlled cutting equipment and font characteristics, users should determine their own cutting and weeding capability.

These factors can affect cutting quality and ability:

- **Sharpness of the knife blade.** Dull blades create a serrated look to the cut edge of the film.
- **Weight on the knife blade.** The ideal weight slightly scores the liner. Too little weight does not cut completely through the film and the adhesive. Excessive weight cuts the liner. It also causes the blade to drag, accelerating wear and eventually creating a serrated cut edge on the film.
- Temperature and relative humidity are minor considerations, but avoid extreme or rapidly fluctuating conditions.
- Store the film in the same environment as the cutting equipment.
- Consider the stroke width of characters, style of serifs or extensions, and small details of scanned or digitized artwork.
- The minimum recommended stroke width is 0.040 inch (1.0 mm) when film is exposed to cleaning or other physical stress.

C. Weeding

The excess film should be weeded (removed) as soon after cutting as practical. This is to minimize the effect of possible adhesive flow 24 or more hours after cutting.

D. Application Tapes

The application tape to use depends on the type of graphic produced. See Instruction Bulletin 4.3 for more details.

(1) When to Use Premasking Tape

- As an application aid to increase stiffness, and prevent stretching and damage during application.
- When little or no liner is exposed.

(2) When to Use Prespacing Tape

- Protect cut graphic parts from scratching or damage during application.
- Use when large amounts of liner are exposed.

(3) Use This Tape

Use premasking tape SCPM-3 for premasking, and tape SCPS-2 for prespacing.

11. Shelf Life, Storage and Shipping

A. Shelf Life

Total shelf life: 3 years from the date of manufacture on the original box. If you do process the film, do so within 2 years and apply within 1 year. If you do not process the film, apply it within 3 years.

B. 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

C. Shipping Finished Graphics

Flat (may be separated by paper), 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.

12. Health and Safety



CAUTION

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

13. 3M Related Literature

Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. Current Bulletins are available at 3Mgraphics.com. The following applicable Bulletins provide information and processes you need to properly make the graphics described in this Bulletin. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
3M™ Screen Printing Ink Series 1900 and Overprint Clear VI0402 Screen printing with ink series 1900 - line color - 4-color	PB	1900
	IB	3.12
	IB	3.11
Design of graphics	IB	2.1
Using 3M application tapes; premasking and prespacing for films	IB	4.3
Application, substrate selection, preparation and substrate-specific application techniques	IB	5.1
Application, general procedures for indoor and outdoor dry applications	IB	5.5
Storage, handling, maintenance, removal	IB	6.5
3M Commercial Graphics Warranty Brochure		www.3Mgraphics.com.Warranties

3M, ElectroCut, MCS, and Scotchcal are trademarks of 3M Company.

14. Bulletin Change Summary

3M™ Scotchcal™ Dusted and Frosted Crystal Film Series 7725SE-300 is now called 3M™ Crystal Films and is available from 3M Architectural Markets. This Bulletin now covers only the fluorescent film series 7725SE-400.



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