



Scotchcal™ ElectroCut™ Graphic Film

Series 7725SE

For Electronic Cutting, Screen Printing and Piezo Inkjet Printing

Product Description

Film series 7725SE are 2 to 3.8 mil, pressure-sensitive films designed for permanent graphics. Use these films to create unique, special effect films. The transparent dusted crystal film and the five colors of frosted crystal film have transparent synthetic liners, which resist moisture absorption and static buildup for easier cutting and assembly, and are intended only for cut graphics. The fluorescent films, available in six colors, have a paper liner and can be screen printed or electronically cut.

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
- Window graphics and indirectly-illuminated graphics (dusted and frosted crystal only)
- High visibility and weather resistant graphics (fluorescent colors only)
- Screen printed graphics (fluorescent colors only)
- Films 7725SE-314 (dusted crystal) and 7725SE-324(white frosted crystal) are piezo inkjet printable on a customer test-and-approve basis (see page 4 for details)

Limitations of End Uses

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.

- Screen printing on dusted or frosted crystal films
- Application of dusted or frosted crystal film between two sheets of glass
- Using fluorescent film where black light fluorescence is required
- Non-vertical applications
- Application to corrugated surfaces or surfaces with compound curves
- Graphics subjected to gasoline vapors or spills
- Thermoforming
- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684 for alternatives.

Compatible Products

3M Graphic Materials

This Bulletin provides details about the base film and construction options and warranty. 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.

Inks (For use on fluorescent film only)

- 3M™ Screen Printing Ink Series 1900 *line color only*

Graphic Protection Options
(For use on fluorescent film only)

- 3M™ Screen Printing Gloss Clear 1920DR

Other Products

- 3M™ Prespacing Tape SCPS-2
- 3M™ Prespacing Tape SCPS-53X
- 3M™ Premasking Tape SCPM-3

Characteristics

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

Physical Characteristics

Characteristic	Description
Film	Cast vinyl
Opacity	Dusted Crystal: translucent Frosted Crystal: translucent Fluorescent: glossy opaque
Thickness	Dusted Crystal Without adhesive: 2 mil (0.05 mm) With adhesive: 3 mils (0.08 mm) <i>nominal</i> Frosted Crystal Without adhesive: 3.8 mil (0.09 mm) With adhesive: 4.8 mils (0.12 mm) <i>nominal</i> Fluorescent Without adhesive: 3.25 mil (0.08 mm) With adhesive: 4 mils (0.1 mm) <i>nominal</i>
Colors	See Color Chart
Unique qualities	Dusted Crystal <ul style="list-style-type: none"> • Low gloss eliminates glare • Uniform appearance of etched glass Frosted Crystal <ul style="list-style-type: none"> • Low gloss eliminates glare • Uniform appearance of sand-blasted glass Fluorescent <ul style="list-style-type: none"> • Activated by exposure to near-ultraviolet visible light, but not black light • Extremely conspicuous colors in daylight • High attention value under poor visibility, particularly at dawn or dusk
Adhesive type	Pressure sensitive
Adhesive color	Dusted and Frosted Crystal: Clear Fluorescent: Gray
Liner	Fluorescent: Kraft paper, white Dusted and Frosted Crystal: Transparent synthetic
Tensile strength <i>minimum</i>	Dusted Crystal and Fluorescent: 5 pound/inch at 73°F (0.9 kg/cm at 23°C) Frosted Crystal: 3.5 pound/inch at 73°F (0.6 kg/cm at 23°C)
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>)
Flammability	For films 7725SE-314, -324 and -331, the Flame Spread Index and the Smoked Developed Index are both 0. Contact 3M at 1-800-328-3908 for more information.

Application Characteristics

Characteristic	Description
Finished graphic application recommendation	<p>Graphic orientation: Vertical</p> <p>Surface type: Dusted and Frosted Crystal: Flat Fluorescent: Flat with or without rivets</p> <p>Substrate type: Glass, acrylic, polycarbonate; also aluminum and painted metal for fluorescent film</p> <p>Application temperature: 50° to 100°F (10° to 38°C) <i>air and substrate</i></p>
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

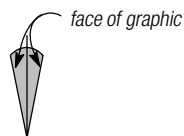
Color Chart

Dusted Crystal No.	Dusted Crystal Color	Frosted Crystal No.	Frosted Crystal Color	Fluorescent No.	Fluorescent Color
314	Dusted Crystal	323	Frosted Rose	404	Yellow Orange
		324	Frosted Crystal	405	Yellow
		326	Frosted Mint	406	Green
		327	Frosted Blue Mist	407	Blue
		331	Frosted Gold	413	Fuchsia
				414	Red Orange

Definitions

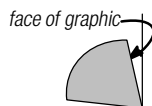
Exposure

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 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. A detailed map is available at 3Mgraphics.com under Warranties.

Graphic Types

Indoor Signs

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

Outdoor Signs

Stationary graphics applied outdoors and exposed to the elements.

Graphic Construction

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

Vehicle

Fleet Vehicle

Straight trucks, semi-tractors and trailers used in commercial fleets. Excludes air shields.

Standard Vehicle

Buses, vans, automobiles, recreational vehicles unless otherwise noted.

Warranty Information

Warranty and Limited Remedy

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: all 3M products are 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. 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. **In no case shall 3M be liable for any direct, indirect, or consequential damages, including any labor or non-3M materials charges.**

See the *3M Graphics Market Center Warranty Brochure* at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

Warranty Coverage Overview

Both the warranty coverage and the durability for each graphic is based on the user(s) reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranted Durability stated in the Warranted Durability Table in the base film or substrate Product Bulletin that is current when the film was purchased. Warranted durabilities may be reduced and stipulations may apply for certain constructions and applications, as covered in this Bulletin.

3M™ MCS™ Warranty

Warranted Durability Table
for Finished Graphics
in a Standard U.S. Vertical Exposure

Finished graphics constructed as shown in the tables below are eligible for the MCS Warranty. For warranties for other exposures, see page 6.

Out = Outdoor Signs
In = Indoor Signs
Window = Inside of Exterior Window

Graphic Protection	Vertical U.S. Exposure						Vertical U.S. Desert Southwest Exposure					
	No Printing			Ink Series 1900			No Printing			Ink Series 1900		
	Out	In	Window	Out	In		Out	In	Window	Out	In	
	Film Colors: Dusted Crystal 7725SE-314											
None	3	15	5	—	—		2	15	4	—	—	
	Film Colors: Frosted Crystal 7725SE-323, 324, 326, 327, 331											
None	3	15	5	—	—		2	15	4	—	—	
	Film Colors: Fluorescent 7725SE-404, 405, 406, 407, 413, 414											
None	1	5	—	—	—		0.75	5	—	—	—	
1920DR	—	—	—	1	5		—	—	—	0.75	5	

Piezo Inkjet Printing on Film 7725SE-314

Films 7725SE-314 and 7725SE-324 are piezo inkjet printable. The graphics manufacturer must test, approve and accept all responsibility for satisfactory use. Only a 3M Basic Product Warranty is offered when used for piezo inkjet printing; there is no warranted durability offered.

General Warranty Stipulations

These stipulations apply to graphics covered by the 3M™ MCS™ Warranty. Specific provisions of these stipulations are found in the *3M Graphics Market Center Warranty Brochure* at 3Mgraphics.com.

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

Abrasion and Loss of Gloss

Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear.

Application to Glass

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

Application Outside the U.S.

Contact the 3M organization for that country.

Graphics Made with Components Not Sold or Recommended by 3M

The 3M™ MCS™ Warranty does not cover finished 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 other products.

Thermal Transfer Printing

Formulations and processing conditions can affect ink durability. Refer to the Product and Instruction Bulletins for your ink for limitations and proper usage.

Fabrication

This Bulletin does not contain detailed processing or application procedures. Refer to the 3M Related Literature for further information.

Cutting

Minimum Cutting Heights

Based on cutting and weeding evaluations that used Helvetica medium upper case, the recommended minimum cutting height for text is 0.375 inch (0.95 cm) for dusted and frosted crystal films, and 0.5 inch (12.7 mm) for fluorescent film. 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.

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.

Application Tapes

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

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.

When to Use Prespacing Tape

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

How to Select a Tape

Determine whether you want to premask the graphic or prespace cut pieces of film such as letters. In the table below, locate the last coating applied to your graphic and use the corresponding tape. See Instruction Bulletin 4.3 for complete details.

	Dusted Crystal	Fluorescent	Frosted Crystal
Prespacing SCPS-2	■	■	■
Prespacing SCPS-53X			■
Premasking SCPM-3	■	■	

Shelf Life, Storage and Shipping

Shelf Life

Total shelf life: 3 years from the date of manufacture on the original box
Up to 3 years unprocessed, **OR** process within 2 years **and** apply within 1 year of processing

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 from popping off.

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.

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 VIO402	PB	1900
• Screen printing with ink series 1900 - line color	IB	3.12
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
Application, wet method for translucent screen printed, thermal mass transfer and cut graphics	IB	5.7
Storage, handling, maintenance, removal	IB	6.5
3M Graphics Center Warranty Brochure	go to www.3Mgraphics.com	

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Bulletin Change Summary

Minimum application temperature is 50°F (10°C), not 40°F (6°C). Corrected metric conversions for values regarding film thickness. Films 7725SE-314 and 7725SE-324 are suitable for piezo inkjet printing on a graphics manufacturer and approve basis. See page 4 for details. Total shelf life has increased from 2 years to 3 years.



Commercial Graphics Division
 3M Center, Building 220-12E-04
 PO Box 33220
 St. Paul, MN 55144-3220 USA
 General Info. 1-800-374-6772
 Technical Info. 1-800-328-3908
 Fax 1-651-736-4233

3M Canada
 P.O. Box 5757
 London, Ontario
 Canada N6A 4T1
 1-800-265-1840
 Fax 519-452-6245

3M México, S.A. de C.V
 Av. Santa Fe No. 55
 Col. Santa Fe, Del. Alvaro Obregón
 México, D.F. 01210
 52-55-52-70-04-00
 Fax 52-55-52-70-22-77

3M Puerto Rico, Inc.
 Puerto Rico Industrial Park
 350 Chardon Avenue, Suite 1100
 San Juan PR 00918
 787-620-3000
 Fax 787-620-3018

www.3Mgraphics.com

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