



Scotchcal™

Translucent Graphic Film Series 3630

For Screen Printing, Electronic Cutting and Thermoforming

Description

3M™ Scotchcal™ Translucent Graphic Film Series 3630 is a cast vinyl graphic film with a clear, permanent, pressure-sensitive adhesive and a synthetic liner that does not split if wet. The matte surface finish eliminates glare and provides a uniform color in both reflected and transmitted light. This film is thermoformable.

Advantages

- Translucent synthetic liner!
- Translucent, cast vinyl film
- Wide color selection, many with PANTONE® simulations
- Uniform color in both reflected and transmitted light
- Low surface gloss eliminates glare
- Translucent liner facilitates multi-color registration
- Superior lay-flat characteristics in all shop humidity conditions
- Liner is not affected by moisture; does not split if wet

Applications and End Uses

3M™ Scotchcal™ Translucent Graphic Film Series 3630 is intended for making permanent, durable graphics when used with the listed Compatible Products in the following applications. These types of applications are warranted by the 3M™ MCS™ Warranty.

- For interior or exterior use on:
 - The listed compatible substrates
 - Internally-illuminated sign faces
 - Internally-illuminated awnings protected by 3M™ Scotchcal™ Overlaminates 3640GPS and 3642GPS
- For first surface application to selected 3M substrates; see Compatible Products
- For thermoforming with rigid plastic surfaces under well-controlled conditions as described in Instruction Bulletin 5.16

Limitations of Uses

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

Specifically, we do not warrant this film for the following:

- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684, Ext. 444, for alternatives.
- Graphics applied to competitive flexible substrates
- Graphics applied to substrates having coatings such as silicone.
- Graphics with more than two layers of film, except as described in **Three Film Layer Constructions**, page 4.

Compatible Products

- 3M™ Screen Printing Ink Series 1900
- 3M™ Screen Printing Ink Series 9700UV
- 3M™ Panaflex™ Awning and Sign Facing 945GPS
- 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI
Product was discontinued approximately 9/1/03
- 3M™ Panagraphics™ II Intermediate Flexible Substrate
- Additional flat, rigid substrates such as flat acrylic, polycarbonate*, PETG sheet, glass
- 3M™ Scotchcal™ High Gloss Overlamine 3640GPS and Matte Overlamine 3642GPS, for enhanced cleaning and durability

* Film series 3630 typically adheres to solar-grade polycarbonate substrate. However, some lots of this substrate may inhibit the adhesion of film series 3630. Contact 3M Commercial Graphics Technical Service (see page 6) if you are having difficulty with this combination. See Instruction Bulletin 5.7 for additional information.

Polycarbonate substrates may require drying by baking before use. Refer to the manufacturers' instructions.

Note: For the full product names of the 3M products listed on this page, please see page 1.

Characteristics

This information is subject to change. Be sure this is the most current Product Bulletin. See 3M Related Literature at the end of this bulletin.

Characteristic	Description
Film	Cast vinyl
Film color	Translucent
Thickness	2 mils (0.05 mm) <i>without adhesive</i> 3-4 mils (0.08-0.10 mm) <i>with adhesive</i>

Characteristic	Description
Adhesive type	Pressure sensitive
Adhesive color	Clear
Liner	Translucent, synthetic liner
Application surfaces	Flat, without rivets
Recommended application substrates	Flexible sign facing Rigid substrates such as flat acrylic, PETG sheet, polycarbonate*, glass
Minimum application temperature	60°F (16°C) <i>air, film, substrate</i>

Color Chart

Note: Please review the chart carefully for changes and corrections. This chart supersedes the Color Charts in all other versions of Product Bulletin 3630.

Product No.	Color	PANTONE Color ¹	Product No.	Color	PANTONE Color ¹
3630-005	Ivory	n/a	3630-106	Brilliant Green	PANTONE 376 C
3630-015	Yellow	PANTONE 109C	3630-108	Pink	PANTONE 224 C
3630-20	White	n/a	3630-109	Light Rust Brown	PANTONE 181 C
3630-22	Black ²	PANTONE Process Black C	3630-115	Lt. Lemon Yellow	PANTONE 3995 C
3630-25	Sunflower	PANTONE 123 C	3630-116	Bright Jade Green	n/a
3630-26	Green	PANTONE 349 C	3630-118	Intense Magenta	PANTONE 241 C
3630-33	Red	n/a	3630-121	Silver	PANTONE 877 C
3630-36	Blue	PANTONE 281 C	3630-125	Golden Yellow	PANTONE 1235 C
3630-43	Lt. Tomato Red	n/a	3630-126	Dark Emerald Green	PANTONE 3435 C
3630-44	Orange	PANTONE 1655 C	3630-127	Intense Blue	PANTONE 300 C
3630-49	Burgundy	PANTONE 188 C	3630-128	Plum Purple	PANTONE 2622 C
3630-51	Silver Gray	PANTONE 439 C	3630-129	Bronze	PANTONE 471 C
3630-53	Cardinal Red	n/a	3630-131	Gold Metallic	PANTONE 873 C
3630-57	Olympic Blue	n/a	3630-133	Raspberry	PANTONE 220 C
3630-59	Dark Brown	PANTONE 4625 C	3630-136	Lime Green	PANTONE 368 C
3630-61	Slate Gray	n/a	3630-137	European Blue	PANTONE 281 C
3630-63	Rust Brown	PANTONE 483 C	3630-141	Gold Nugget	n/a
3630-68	Rose Mauve	PANTONE 190 C	3630-143	Poppy Red	n/a
3630-69	Duranodic ²	PANTONE Black C	3630-146	Light Kelly Green	PANTONE 347 C
3630-71	Shadow Gray	PANTONE 409 C	3630-147	Light European Blue	n/a
3630-73	Dark Red	n/a	3630-149	Light Beige	PANTONE 468 C
3630-74	Kumquat Orange	PANTONE 1375 C	3630-156	Vivid Green	PANTONE 355 C
3630-75	Marigold	n/a	3630-157	Sultan Blue	PANTONE 288 C
3630-76	Holly Green	n/a	3630-167	Bright Blue	PANTONE 2945 C
3630-78	Vivid Rose	PANTONE 206 C	3630-236	Turquoise	PANTONE 3282 C
3630-83	Regal Red	PANTONE 187 C	3630-246	Teal Green	PANTONE 322 C
3630-84	Tangerine	PANTONE 151 C	3630-317	Evening Blue	n/a
3630-87	Royal Blue	PANTONE 274 C	3630-337	Process Blue	PANTONE 658 C
3630-97	Bristol Blue	PANTONE 294 C			

¹ These 3M product colors are a simulation of a PANTONE® -identified color standard. You can view these colors on our website at www.scotchprint.com. Go to Product Information then 3M Color Selector. Consult current PANTONE Color Publications for accurate color. PANTONE® is the property of Pantone, Inc. ©Pantone, Inc., 2000 Produced under License Agreement No. 813R between 3M and Pantone, Inc. Special colors are available by request. Pigment durability and manufacturing limitations do not permit exact color matching of all color shades.

² This film is effectively opaque for most sign uses.

Effective Performance Life

The effective performance life is based on field experience and exposure tests conducted throughout the United States. When the graphics are processed and used according to 3M recommendations, they should have the performance life shown in the charts below. The actual performance depends on the:

- Selection and preparation of the substrate
- Application methods
- Exposure conditions
- Cleaning methods
- Correct combination of film, ink, and clear coat (screen printing only)
- Ink formulation (screen printing only)
- Drying methods (screen printing only)

Warranted Durability

Film	Vertical Exposure <i>face of graphic is vertical ± 10°</i>		Non-Vertical Exposure <i>face of graphic is more than 10° from vertical</i>	
	U.S. ¹ years	S.W. ² years	U.S. ¹ years	S.W. ² years
Unprinted film series 3630 applied to first surface				
First surface, Panaflex substrates	6	5	0	0
First surface overlaminated with 3640/3642-114GPS	9	6	6	4
First surface thermoformed	4	2	0	0
First surface thermoformed, overlaminated with 3640/3642-114GPS	6	5	0	0
Unprinted film series 3630 applied to second surface				
Second surface on acrylic and NON-solar grade polycarbonate	6	5	0	0
Second surface on solar grade polycarbonate	9	6	6	4
Second surface on acrylic and NON-solar grade polycarbonate, thermoformed	4	2	4	2
Second surface on solar grade polycarbonate, thermoformed	6	5	6	4
Film series 3630 applied to Panagraphics II substrate				
Unprinted, with no overlaminate or 8519 or 8520	5 ³	3 ³	0	0
Printed with ink series 1900 and clear coat 1920	5 ³	3 ³	0	0
Printed with ink series 9700UV and clear coat 9720UV	5 ³	3 ³	0	0
Printed film series 3630 applied to any compatible substrate				
With ink series 1900 and clear coat 1920	5	4	4	3
With ink series 9700UV and clear coat 9720UV	5	4	4	3

¹ For the warranty periods outside the United States, contact the 3M sales organization for that country.

² The United States Desert Southwest area includes Arizona, New Mexico, and the desert areas of California, Nevada, Utah, and Texas. A detailed map is available by request.

³ The warranty for graphics made with Panagraphics II and unprinted film 3630 is for materials only and is pro-rated on a monthly basis.

Fabrication

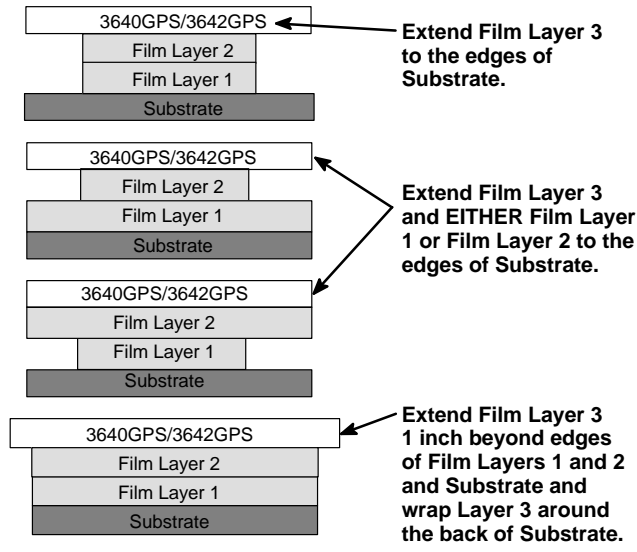
This Bulletin does not contain detailed printing, processing, or application procedures. Refer to the 3M Related Literature section for further information.

Note: For the full product names of the 3M products listed on this page, please see page 1.

Three Film Layer Constructions

Important Note

A third layer of film on any one surface is warranted *only* if the top layer is 3M™ Scotchcal™ Overlaminates 3640GPS or 3642GPS and no more than two layers of any film are even with the edges of the substrate. Therefore:



The following example is a Color By Day / White By Night graphic, which is typical of a construction that requires three film layers. See Figure 1.



Figure 1. Example of Color By Day/White By Night

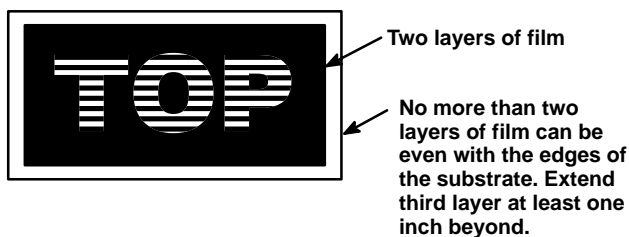


Figure 2. Extend Film 3640/3642GPS Beyond Edges of Other Film Layers

Thermoforming

Refer to Instruction Bulletin 5.16 for detailed information.

Caution

Film series 3630 emits vapors during the thermoforming process. Be sure to read and follow the information contained in the Material Safety Data Sheet (MSDS), the box label, and the Instruction Bulletin 5.16 before thermoforming.

Channel Letter Faces

When using film series 3630 on rigid plastic channel letter faces, avoid contact with the adhesive used to attach the trim cap edge. These adhesives attack film series 3630 and cause curling, lifting and premature failure of the film.

Spray Painting

Initial results indicate that film series 3630 can be spray painted with Grip-Flex™ or Lacryl™ paints with good performance. However, the performance or application of the paints is not warranted.

Cutting

For the inside corners of cut out letters and symbols, and the pointed end of stripes, cut the largest radius consistent with an acceptable appearance. This technique helps avoid stress cracking due to age, and lifting of pointed ends during maintenance.

For individual pieces, use one of these cutting methods.

- Hand cut
- Die cut
- Kiss cut
- Electronic cutter

For multiple pieces, use one of these cutting methods.

- Guillotine
- Die cut

Note: For the full product names of the 3M products listed on this page, please see page 1.

Application Tapes

The type of 3M application tape to use for film series 3630 depends on the type of graphic produced and the ink or clear coat that was applied last.

- Use prespacing tape if very little of the liner is exposed.
- Use a premasking tape if the graphic has large amounts of exposed liner.

Film	Premasking Tape	Prespacing Tape
Unprinted film	SCPM-3	SCPS-2
Screen printing ink series 1900	SCPM-3	SCPS-2
Screen printing ink series 9700UV	SCPM-44X	SCPS-53X

Application

For application by hand, the detergent and water application method is recommended. Dry application by hand may leave some dark streaks or bubbles that could be visible in transmitted light.

For roll application, the dry method is acceptable.

Shelf Life, Shipping, and Storage

- The shelf life film series 3630 cannot exceed two years from the date the film is received from 3M.
- Store the film in a clean, dry area, out of direct sunlight, and at less than 100°F (38°C).
- Ship the finished graphic lying flat or in a roll. To roll the graphic, wrap it film-side out onto a core that is 6 inches (15 cm) or larger in diameter. These methods help prevent the liner and premasking from wrinkling or 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:

- By fax, call 1-800-364-0768 in the US and Canada or 1-650-556-8417 for all other locations.
- Electronically, visit us at <http://www.3m.com/msds>.
- 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.

Important Note

The user is responsible for determining and complying with all applicable building codes that affect the use of materials in interior and exterior awning, banner and sign face applications, including flammability standards. For information on flammability requirements, contact your local building code officials. For information on the results of flammability testing on 3M™ Panaflex™ Products from 3M Commercial Graphics Division, call 1-800-328-3908.

Product Data

The values given are typical for film series 3630. For a custom specification, submit a request to your 3M sales representative.

Physical Properties

Property	Value
Tensile strength	5 pounds/inch at 73°F (0.9 kg/cm at 23°)
Applied shrinkage	0.015 inch (0.4 mm)
Service temperature range*	-50° to +170°F (-45° to +77°C)
Adhesion (acrylic and uncoated, clear polycarbonate)	4.0 pounds/inch (0.7 kg/cm)

*Impact at low temperatures of film applied to flexible substrates may result in cracking of the film and/or substrate.

Chemical Resistance

- Resists mild acids, alkalis, and salts
- Excellent water resistance

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: Film series 3630 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. 3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. See the worldwide 3M™ MCS™ Warranty bulletin, which gives the terms and limitations of the warranty.

These remedies are exclusive. In no case shall 3M be liable for any direct, indirect or consequential damages, including any labor or non-3M material charges.

Attention:

Scotchprint® Graphics Authorized Manufacturers

There's a whole other world behind the Scotchprint® Graphics Internet site (www.scotchprint.com) and you can travel there with the Scotchprint® Graphics Network. This password-protected Web site opens the door to exclusive Scotchprint® Graphics product information, services and product promotions for 3M's Scotchprint® Graphics Authorized Manufacturers.

There's no charge and you can sign up today. Just ask your Commercial Graphics Division sales representative.

3M Related Literature

Listed below is related 3M technical literature that may be of interest. You may view and print these Bulletins from our Web site at www.scotchprint.com, or order them via our Fax-on-Demand (FOD) system. Call one of these phone numbers to order the desired bulletins, and specify the FOD document number provided in the chart.

United States or Canada: 1-800-364-0768
International: 1-651-732-6506

Subject	Bulletin No.	FOD No.
Product Bulletins		
3M™ Screen Printing Ink Series 1900	1900	2501
3M™ Screen Printing Ink Series 9700UV	9700	2507

Subject	Bulletin No.	FOD No.
3M™ Panaflex™ Enhanced Image Sign Facing 645EI	645	4001
3M™ Panaflex™ Awning and Sign Facing 945GPS	945	4006
3M™ Panagraphics™ II Intermediate Flexible Substrate	Panagraphics	4010
3M™ Light Control Film Series 3635	3635	3010
3M™ Scotchcal™ Overlaminate 3640GPS and 3642GPS	3640/ 3642	3011
Instruction Bulletins		
Design of graphics	2.1	5501
Screen printing with ink series 1900 - line color - 4-color	3.11 3.12	6011 6012
Screen printing with ink 9700UV	3.4	6004
Scoring and cutting	4.1	6501
Using 3M application tapes; premasking and prespacing for films	4.3	6503
Application, substrate selection, preparation and substrate-specific application techniques	5.1	7001
Application, wet method for translucent screen printed, thermal mass transfer and cut graphics	5.7	7007
Application and attachment of graphics	5.21	7021
Thermoforming	5.16	7016
Storage, handling, maintenance, removal	6.5	8505

Grip-Flex is a trademark of AKZO Wyandotte.

Lacryl is a trademark of Spraylat Corporation.

Bulletin Change Summary

Revised product description of the film's gloss to say "matte surface finish"; discontinued offering a non-vertical warranty for first surface thermoformed graphics. Added Panagraphics II substrate as a compatible product and provided warranty information. Panaflex Awning and Sign Facing 645EI was discontinued in September, 2003; some inventory may be available after that time; warranties in effect at the time the product was sold will be honored.



Commercial Graphics Division

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