



3M™ Scotchcal™

Translucent Graphic Film Series 3630

For Screen Printing, Electronic Cutting and Thermoforming

Product 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.

Key Features

- Translucent synthetic liner!
- Translucent, cast vinyl film
- Wide colour selection, many with PANTONE simulations
- Uniform colour in both reflected and transmitted light
- Low surface gloss eliminates glare
- Translucent liner facilitates multi-colour 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.
- 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)
- 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™ Panagraphics™ II Intermediate Flexible Substrate
- Additional flat, rigid substrates such as flat acrylic, polycarbonate*, PETG sheet, glass
- 3M™ Scotchcal™ High Gloss Overlaminates 3640GPS for enhanced cleaning and durability

* Some polycarbonate substrates have a scratchproof coating on one side. This coating has a low surface energy and will discourage adhesion. In these cases, second surface application should be considered.

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

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 colour	Translucent
Thickness	0.05 mm (50 micron) <i>without adhesive</i> (80-100 micron) <i>with adhesive</i>
Adhesive type	Pressure sensitive
Adhesive colour	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
Application temperature	16°C - 38°C <i>air, film, substrate</i>
Tensile Strength	0.7 kg/cm @ 23°C 6.8N
Elongation	100 % @23°C
Dimensionable stability	0.30mm
Temperature range*	-29°C to +80°C <i>*For applications nearing the minimum temperature range, please contact your local technical service representative to confirm suitability of application</i>
Adhesion anodized aluminum	0.7 kg 1 cm 6.8N

Chemical Resistance

Chemical Agent	Exposure Time	Results
Water	24 hours	No effect
Mild soap and water	24 hours	No effect
20% Isopropyl alcohol, 80% Water	10 mins	No effect
10% Hydrochloric acid	10 mins	No effect
10% Ammonium hydroxide	10 mins	No effect

Colour Chart

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

¹ These 3M product colours are a simulation of a PANTONE® -identified colour standard. You can view these colours on our website at www.scotchprint.com. Go to Product Information then 3M Colour Selector. Consult current PANTONE Colour Publications for accurate colour. PANTONE® is the property of Pantone, Inc. Pantone, Inc.,

2000 Produced under License Agreement No. 813R between 3M and Pantone, Inc. Special colours are available by request. Pigment durability and manufacturing limitations do not permit exact colour matching of all colour shades.

² This film is effectively opaque for most sign uses

³ This film is specifically designed (and can be inkjet printed) for use with LED side-lit sign boxes and offers a light transmission value of 43%, compared to 27% for 3630-20.

Product No.	Colour	PANTONE Colour ¹
3630-005	Ivory	n/a
3630-015	Yellow	PANTONE 109C
3630-20	White	n/a
3630-22	Black ²	PANTONE Process Black C
3630-25	Sunflower	PANTONE 123 C
3630-26	Green	PANTONE 349 C
3630-33	Red ²	PANTONE 485 C
3630-36	Blue	PANTONE 281 C
3630-43	Lt. Tomato Red ²	PANTONE 1788 C
3630-44	Orange	PANTONE 1655 C
3630-49	Burgundy	PANTONE 188 C
3630-51	Silver Gray	PANTONE 439 C
3630-53	Cardinal Red	n/a
3630-57	Olympic Blue	n/a
3630-59	Dark Brown	PANTONE 4625 C
3630-61	Slate Gray	n/a
3630-63	Rust Brown	PANTONE 483 C
3630-68	Rose Mauve	PANTONE 190 C
3630-69	Duranodic ²	PANTONE Black C
3630-71	Shadow Gray	PANTONE 409 C
3630-73	Dark Red	n/a
3630-74	Kumquat Orange	PANTONE 1375 C
3630-75	Marigold	n/a
3630-76	Holly Green	n/a
3630-78	Vivid Rose	PANTONE 206 C
3630-83	Regal Red	PANTONE 187 C
3630-84	Tangerine	PANTONE 151 C
3630-87	Royal Blue	PANTONE 274 C
3630-97	Bristol Blue	PANTONE 294 C
3630-106	Brilliant Green	PANTONE 376 C
3630-108	Pink	PANTONE 224 C
3630-109	Light Rust Brown	PANTONE 181 C
3630-115	Lt. Lemon Yellow	PANTONE 3995 C
3630-116	Bright Jade Green	n/a
3630-118	Intense Magenta	PANTONE 241 C
3630-121	Silver	PANTONE 877 C
3630-125	Golden Yellow	PANTONE 1235 C
3630-126	Dark Emerald Green	PANTONE 3435 C
3630-127	Intense Blue	PANTONE 300 C
3630-128	Plum Purple	PANTONE 2622 C
3630-129	Bronze	PANTONE 471 C
3630-131	Gold Metallic	PANTONE 873 C
3630-133	Raspberry	PANTONE 220 C
3630-136	Lime Green	PANTONE 368 C
3630-137	European Blue	PANTONE 281 C
3630-141	Gold Nugget	n/a
3630-143	Poppy Red	n/a
3630-146	Light Kelly Green	PANTONE 347 C
3630-147	Light European Blue	n/a
3630-149	Light Beige	PANTONE 468 C
3630-156	Vivid Green	PANTONE 355 C
3630-157	Sultan Blue	PANTONE 288 C
3630-167	Bright Blue	PANTONE 2945 C
3630-236	Turquoise	PANTONE 3282 C
3630-246	Teal Green	PANTONE 322 C
3630-317	Evening Blue	n/a
3630-337	Process Blue	PANTONE 658 C
3630LED-20	White ³	n/a

Warranty

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

Vertical Exposure face of graphic is vertical $\pm 10^\circ$			Non Vertical Exposure face of graphic is more than 10° from vertical						
Application *	Zone			Overlaminated with Scotchcal 3640/42	Application:*	Zone			
	1	2	3			1	2	3	
All 3630 films on acrylic or Panaflex 945	10	7	5	12 9 7	All 3630 films on acrylic or Panaflex 945	4	3	2	7 5 4
Except 3630-121; 131; 141 Vertical Exposure Only	5	4	3	8 6 4	-	-	-	-	-
Except 3630-121;131;141 Vertical Exposure Only	5	4	3	8 6 4	-	-	-	-	-
Vacuum Thermoformed All 3630 films Except -	6	5	4	Not recommended	-	-	-	-	-
3630-121; 131; 141	5	4	3		-	-	-	-	-
Printed with ink series:				Inc. Clear Coat	-	-	-	-	-
1900 Series. Line inks	5	4	3	1920	-	-	-	-	-
1900 Series Halftone Inks	4	3	2	1920	-	-	-	-	-
9700 Series UV Inks	7	5	3	9720	-	-	-	-	-

Zone 1 = Northern & Central Europe; Zone 2 = Mediterranean Europe; Zone 3 = Middle East and Northern Africa

*The film's warranted period will vary, depending on the substrate. This matrix indicates the films intended use. For other applications, contact your local 3M representative.

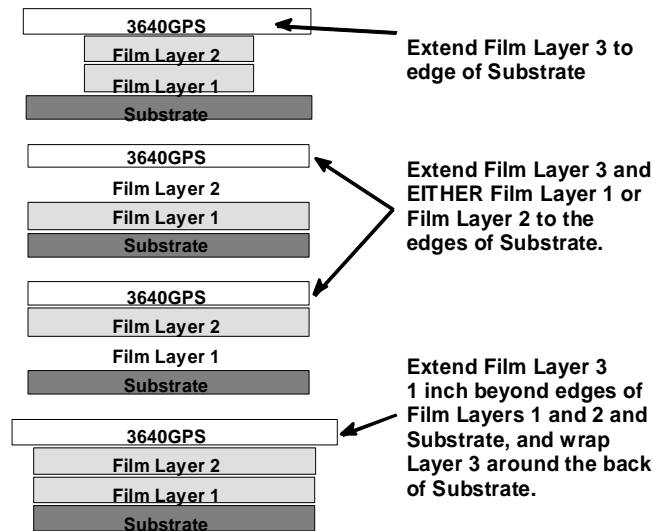
Fabrication

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

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™ Transparent Films 3640 GPS and no more than two layers of any film are even with the edges of the substrate. Therefore:



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



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

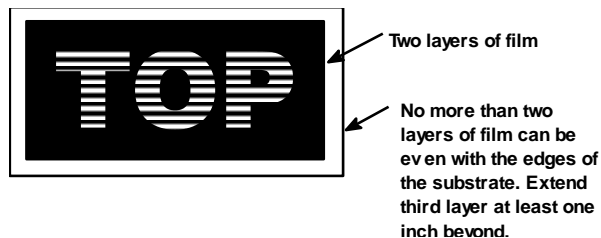


Figure 2. Extend Film 3640 Beyond Edges of Other Film Layers

Thermoforming

Refer to Instruction Bulletin 5.16 for detailed information.

⚠ Caution

Film series 3630 emits vapours 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

Premasking/Prespacing

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-19	SCPS-100
Screen printing ink series 1900	SCPM-19	SCPS-100
Screen printing ink series 9700UV	SCPM-19	SCPS-100

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 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 (15 cm) or larger in diameter. These methods help prevent the liner and premasking from wrinkling or popping off.

Glossary of Terms

Matched Component System™ or MCS™

The system pursuant to which Finished Graphics are produced by a Graphic Manufacturer using only 3M Products and components and manufactured in accordance with 3M's Product or Instruction Bulletins, 3M Specification Document and using 3M Approved Technologies.

Permanent Adhesive

Films with a permanent adhesive can be difficult to remove and will often require heat and/or chemicals for effective removal.

Health & Safety

Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department on 01344 858000.

3M Related Literature

Subject	Bulletin No.
Product Bulletins	
3M™ Screen Printing Ink Series 1900	1900
3M™ Screen Printing Ink Series 9700UV	9700
Subject	Bulletin No.
3M™ Panaflex™ Awning and Sign Facing 945GPS	945
3M™ Panagraphics™ II Intermediate Flexible Substrate	Panagraphics
3M™ Light Control Film Series 3635	3635
3M™ Scotchcal™ Overlaminates 3640GPS	3640
Instruction Bulletins	
Design of graphics	2.1
Screen printing with ink series 1900 - line colour	3.11
- 4-colour	3.12
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Scoring and cutting	4.1
Using 3M application tapes; premasking and prespacing for films	4.3
Application, substrate selection, preparation and substrate-specific application techniques	5.1
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Important Notice to Purchaser

The 3M products described in this publication are covered by a 3M warranty and limitation of liability.

3M's warranty provides that if 3M finds that goods are defective in material or workmanship they will be replaced or the price refunded at 3M's option but note that 3M does not accept liability for other direct losses (except for personal injury or death) or consequential losses relating to defective products or from information supplied by 3M.

Purchasers and users of 3M products, and not 3M supplying companies, are always solely responsible for deciding on the suitability of the 3M product for their required or intended use.

Technical Assistance

For help on specific questions relating to 3M Commercial Graphics Division Products, contact your local Technical Service Representative.

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