



Scotchcal™ Graphic Film

Series 3690

Scotchcal™ Graphic Film

Series 3695

Product Bulletin

Product Description

This cast film can be used for a variety of applications on sand cast, moderately rough or low surface energy substrates including polyolefin.

3M™ Scotchcal™ Graphic Film Series 3695 is the black version of 3M™ Scotchcal™ Graphic Film Series 3690.

Product Characteristics

Physical & Application

Product Line	Inkjet printing	IJ3690-10	white, opaque, glossy, permanent adhesive (grey).
	Screen printing	3690	white, opaque, glossy, permanent adhesive (grey).
		3695	black, opaque, glossy, permanent adhesive (clear).

These are typical values for unprocessed products.
Contact your 3M representative for a custom specification.

Material	cast vinyl	
Surface finish	glossy	
Thickness (film)	50 µm (0.05 mm)	
Adhesive type	solvent acrylic; pressure-sensitive	
Adhesive appearance	films available with clear and grey adhesive	
Liner	films available with Kraft paper and double-sided Polyethylene coated paper - versions indicated by a letter: A, C: Kraft paper: B, D: coated paper	
Adhesion	approx. 22 N/25 mm	FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Application method	dry only!	
Applied shrinkage	< 0.1 mm	FTM 14
Application temperature	+4°C	minimum (air and substrate)
Service temperature	-50°C to +90°C	
Surface type	flat to simple curved	
Substrate type	low surface energy substrates (PE, PP)	
Graphic removal	Hard to remove from supported substrates.	

Storage

Shelf life	Use within 2 years from the date of manufacture on the sealed original box. Use within 1 year after opening the box.
Storage conditions	+4°C to +40°C, out of sunlight, original container in clean and dry area.

Flammability

Flammability standards are different from country to country. Ask your local 3M contact for details, please.

Durability

Unprocessed film

The following durability data are given for unprocessed film only!

3M™ MCS™ Warranty

In addition, 3M provides a warranty on a finished applied graphic within the framework of 3M™ MCS™ warranty program.

Climatic zones

Graphic durability is largely determined by the climate and the angle of exposure. Find below a table showing the durability of a product according to the angle of exposure and the geographical location of the application.

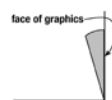
Zone 1 Northern Europe, Italy (north of Rome), Russia

Zone 2 Mediterranean area without North Africa, South Africa

Zone 3 Gulf area, Africa

Exposure types

Vertical:



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

Interior: Interior means an application inside a building without direct exposure to elements.

Vertical outdoor exposure

white/black

Zone 1

6 years

Zone 2

4 years

Zone 3

3 years

Interior application

interior

Zone 1

10 years

Zone 2

10 years

Zone 3

10 years

Limitations of End Uses

3M specifically does not recommend or warrant the following uses, but please contact us to discuss your needs to recommend other products.

Graphics applied to

- flexible substrates incl. 3M™ Panaflex™ Awning and Sign Facing 945GPS and 3M™ Panagraphics™ III Wide Width Flexible Substrate.
- other than flat or simply curved surfaces.
- painted or unpainted wallboards, gypsum boards and wallpapers.
- surfaces that are not clean and smooth.
- surfaces with poor paint to substrate adhesion.

Graphic removal from

- signs or existing graphics that must remain intact.

Graphics subjected to

- gasoline vapors or spills.

Important Notice

- 3M Commercial Graphics Division products are not tested against automotive manufacturer specifications!
- Non vertical applications will have a significant decrease in durability!
- To avoid color variations all pieces of applied film of one colored area should be processed out of one lot of material.

Graphics Manufacturing

Graphic protection can improve the appearance, performance and durability of printed graphics. Any printed graphic exposed to abrasive conditions (including vehicles), harsh cleaners or chemicals must include graphic protection in order to be warranted.

When to use an overprint clear or overlamine

See instruction bulletin GPO 'graphic protection options' for further information about selection and use of protective overlaminates and printable clears.

> [Product Bulletin Graphic Protection Options](#) <

Shipping finished graphics

Flat, or rolled film side out on 130 mm (5 inch) or larger core. These methods help to prevent the liner from wrinkling or application tape, if used, from popping off.

Converting Information Inkjet Printing

Adequately Dry
Graphics

A too high total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. The maximum recommended total ink coverage for this film is 270%.

Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty. Build enough time into your process to ensure adequate drying of the graphic.

Poorly dried film becomes soft and stretchy, and the adhesive becomes too aggressive. 3M recommends at least a minimum drying time of 24 hrs before further processing. Dry the graphic unrolled or at least as a loose wound roll standing upright.

Converting Information Screen Printing

Formulations and processing conditions can affect ink durability. Refer to the 3M Product and Instruction Bulletins for your ink for limitations and proper usage. Graphic protection can improve the appearance, performance and durability of your graphic.

A clear coat also prevents chalking on unprinted films. Use equipment designed to handle high viscosity materials and make sure the coating is evenly applied to the specifications given in the clear's Instruction Bulletin.

Cutting

The following minimum values for cutting text out of this films are based on upper case Helvetica medium type. Weeding is much more difficult with smaller text.

Stroke width: 7 mm; Height: 75 mm; Radius for end of stripe: 0.6 mm

[>Instruction Bulletin 4.1 'Sheeting, Scoring and Film Cutting'<](#)

Application

See product bulletin ATR 'application tape recommendations' for information about selection and use of suitable application tapes for this product, please.

[> Product Bulletin Application Tape Recommendations <](#)

Refer to Instruction Bulletin 5.1 'select and prepare substrates for graphic application', for general application information.

[>Instruction Bulletin 5.1 'select and prepare substrates for graphic application'<](#)

Maintenance and Cleaning

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline).

Refer to Instruction Bulletin 6.5 'storage, handling, maintenance and removal of films and sheetings', for general maintenance and cleaning information.

[>Instruction Bulletin 6.5 'Storage, Handling, Maintenance and Removal of Films and Sheetings'<](#)

Remarks

Important notice

This bulletin provides technical information only.

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.

Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

Additional Information

Visit the web site of your local subsidiary at www.3Mgraphics.com for getting more:

- details about 3M™ MCS™ Warranty and 3M Performance Guarantee
- additional instruction bulletins
- a complete product overview about materials 3M is offering



Commercial Solutions Division

Hermeslaan 7

1831 Diegem, Belgium

Responsible for this technical bulletin

3M Deutschland GmbH | Safety & Graphics Laboratory

Carl-Schurz-Str. 1 | 41453 Neuss, Germany

3M, Controltac, Envision, Panagraphics, Panaflex, Scotchcal, Comply and MCS are trademarks of 3M Company. All other trademarks are the property of their respective owners.

The use of trademark signs and brand names in this bulletin is based upon US standards. These standards may vary from country to country outside the USA.