

# 3M™ Scotchcal™ Opaque Graphic Film Series 80

## Product Bulletin

### Product Description

These excellent cast films are a range of coloured films that have been specially developed to be knife cut on electronic systems. The film range is available in 84 colours including 8 metallic tones.

Series 80 films have good conformability for application on flat or moderate curved surfaces, with or without rivets. They are excellent for easy cutting of small letters or complex graphics.

### Product Line

Electrocut 80-X X = colour code, opaque, glossy (and few matte), permanent adhesive. See website for colour range: [Series 80 colours](#).

### Product Characteristics

#### Physical & Application

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

Material	cast vinyl
Surface finish	gloss and matte (see product line)
Thickness (film)	50 µm (0.05 mm)
Adhesive type	solvent acrylic; pressure-sensitive
Adhesive appearance	clear
Liner	glassine paper
Adhesion	approx. 20 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Application method	wet or dry
Applied shrinkage	< 0.2 mm FTM 14
Application temperature	+8°C minimum (air and substrate)
Service temperature	-40°C to +95°C

Surface type	flat to curved, incl. rivets
Substrate type	aluminium, glass, PMMA, PC*, ABS, paint <small>PC*: Might require drying with heat before use</small>
Graphic removal	Removable with heat from most substrates within the warranty period Use a removal angle of <90° for optimal results. No liability is given for ease or speed of removal of any graphic. Ensure adequate air and substrate temperature for removal.

### Storage

Shelf life	Use within two years from the date of manufacture on the sealed original box. Use within one year after opening the box.
Storage conditions	Store in the original container at temperatures of +4°C to +40°C, out of sunlight, in a clean and dry area. Bring the film to room temperature before use.

### Flammability

Classified according to DIN EN 13501-1 reaction to fire performance as B/s1/d0

## Durability

Unprocessed film  
Climatic zones

The following durability data are given for unprocessed film only.

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.

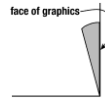
Zone 1 Northern Europe, Italy (north of Rome), Russia  
Mediterranean area without North Africa, South Africa

Zone 2 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 sunlight.

Vertical outdoor exposure	Zone 1	Zone 2	Zone 3
white/black	10 years	8 years	6 years
colours	8 years	6 years	4 years
transparent	5 years	4 years	3 years
metallics	4 years	3 years	2 years
Interior application	Zone 1	Zone 2	Zone 3
interior	10 years	10 years	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™ Panagraphics™ III Wide Width Flexible Substrate and 3M™ Envision™ Flexible Substrate FS1
- low surface energy substrates or substrates with low surface energy coating.
- other than flat or moderate curved/corrugated surfaces.
- painted or unpainted wallboards, gypsum boards and wallpapers.
- stainless steel.
- surfaces that are not clean and/or more than moderately textured.
- surfaces with poor paint to substrate adhesion.

Graphic removal from

- signs or existing graphics which must remain intact.

Graphics subjected to Important Notice

- Petroleum vapours or spills.
- 3M Commercial Graphics Division products are not tested against automotive manufacturer specifications!
- Non vertical applications will have a significant decrease in durability! Thermoforming of applied film is not recommended!
- 3M accepts no liability for glass breakage when using this film for window graphics.
- To avoid colour variations use film from the same roll, or manufacturing lot number, for an entire graphic.
- The colour appearance of metallic film is dependent on the viewing angle to the product. Therefore the graphic should be designed so that all metallic colours applied in the same orientation.

# Graphics Manufacturing

Shipping finished  
graphics

## Converting Information

### Electronic Cutting

Sharpness of knife  
blade

Weight of knife blade

Weeding

Temperature and  
relative humidity

Roll storage

Further information

## Application

## Maintenance and Cleaning

## Remarks

## Health & Safety

## Important Notice to Purchaser

Flat, or rolled colour-side-out on a 15cm (6 inch) or larger core. This helps prevent the liner from wrinkling or application tape (if used), from popping off. Based upon cutting evaluations the minimum height for text is 10 mm using upper and lowercase Helvetica Medium. The stroke width should not be lower than 1mm.

The variable characteristics of electronically controlled cutting equipment require users to verify their specific requirements.

Dull blades impart a serrated look to the edge of the cut film.

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 and causes the blade to drag, accelerating wear and creating a serrated cut edge on the film.

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

Temperature and relative humidity are minor considerations, but avoid extreme or rapid fluctuating conditions.

Store the film in the same environment as the cutting equipment.

For more details please refer to our instruction bulletin 4.1 [Scoring and Cutting of Films](#).

See product bulletin: [Application Tapes](#) for information about selection and use of suitable application tapes for this product, please.

Refer to Instruction Bulletin 5.1 [Substrate Selection, Preparation and Substrate-specific Application Techniques](#) for general application information.

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.

This bulletin provides technical information only.

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.

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.

## Additional Information

Visit the web site of your local subsidiary at [www.3M.co.uk/graphicsolutions](http://www.3M.co.uk/graphicsolutions) for further information, e.g.:-

- details about 3M™ MCS™ Warranty and 3M Performance Guarantee
- additional instruction bulletins
- An overview of the 3M Commercial Graphics range of graphic films

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