



Scotchcal™ General Purpose Graphic Film

Series 50

Scotchcal™ General Purpose Graphic Film

SP50-10; SP50-10R

Scotchcal™ General Purpose Graphic Film

SP50-11; SP50-11R

Product Bulletin

Product Description These polymeric calendered films are a range of colored films that have been specially developed to be knife cut on electronic systems. Furthermore two screenprintable versions are available.

Product Line	Electrocut	SC50-X	X = color code, opaque, glossy, permanent adhesive. Wide selection out of large color range.
	Screen printing	SC SP50-10 SC SP50-11 SC SP50-10R SC SP50-11R	white, opaque, glossy, permanent adhesive (clear). transparent, glossy, permanent adhesive (clear). white, opaque, glossy, removable adhesive (clear). transparent, glossy, removable adhesive (clear).

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

Physical & Application	Material	calendered vinyl (polymeric)	
	Surface finish	glossy	
	Thickness (film)	75 µm (0.075 mm)	
	Adhesive type	solvent acrylic; pressure-sensitive	
	Adhesive appearance	clear	
	Liner	Kraft paper	
		removable films of series	back-sided Polyethylene coated paper
		screen print products:	back-sided Polyethylene coated paper
	Adhesion	14 N/25 mm	FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
		removable films of series	6 N/25 mm
	Application method	wet or dry	
	Applied shrinkage	< 0.4 mm	FTM 14
	Application temperature	+8°C	minimum (air and substrate)
	Service temperature	-40°C to +80°C	

Surface type flat to simple curved
 Substrate type aluminum, glass, PMMA, PC*, ABS, paint

PC*, PETG*: Might require drying with heat before use

Graphic removal Fair to remove with heat and/or chemicals from supported substrates.
 Statement given for removable versions only!
 No liability is given for ease or speed of removal of any graphic. Pay attention to adequate air and substrate temperature.

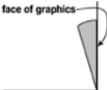
Storage Shelf life 2 years from the date on the original box
 Up to 2 years unprocessed, or processed within 1 year and apply within 1 year of processing

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 Performance Guarantee and MCS™ In addition, 3M provides a guarantee/warranty on a finished applied graphic within the framework of 3M Performance Guarantee and/or 3M MCS™ warranty programs.
 Visit www.3mgraphics.com for getting more details about 3M's comprehensive graphic solutions.

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 ±10° from vertical.

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

	Zone 1	Zone 2	Zone 3
Vertical outdoor exposure			
white/black colors	6 years	5 years	4 years
transparent	6 years	4 years	4 years
metallics	4 years	3 years	3 years
	4 years	2 years	2 years
Interior application	Zone 1	Zone 2	Zone 3
interior	6 years	6 years	6 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. Panaflex™ and Panagraphics™.
 - low surface energy substrates or substrates with low surface energy coating.
 - other than flat or simply curved surfaces.
 - painted or unpainted wallboards, gypsum boards and wallpapers.
 - stainless steel.
 - 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!
 - Thermoforming of applied film is not recommended!
 - To avoid color variations all pieces of applied film of one colored area should be processed out of one lot of material.
 - The color appearance of metallic film is dependent on the viewing angle to the product! Therefore the job design should be done that all parts of metallic film are applied the same orientation.

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 overlaminate
 - 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 Electronic Cutting

- 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 1 mm.
- Sharpness of knife blade
 - The variable characteristics of electronically controlled cutting equipment require users to verify their specific requirements.
 - Weight of knife blade
 - 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.
 - Weeding
 - The excess film should be weed (removed) as soon after cutting as practical. This is to minimize the effect of possible adhesive flow.
 - Temperature and relative humidity
 - Temperature and relative humidity are minor considerations, but avoid extreme or rapid fluctuating conditions.
 - Roll storage
 - Store the film in the same environment as the cutting equipment.
 - Further information
 - For more details refer to our instruction bulletin 4.1 'Sheeting, Scoring, Film Cutting', please.
> [Instruction Bulletin 4.1 'Sheeting, Scoring, Film cutting'](#) <

Converting Information Screen Printing

- Formulations and processing conditions can affect ink durability. Refer to the 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.
- 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 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 This bulletin provides technical information only.

Important notice 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

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