



# 3M™ Scotchcal™ Graphic Film

## Series IJ20

### Product Bulletin

#### Product Description

These monomeric calendered films offer great versatility making them perfect for indoor and outdoor signs and fleet graphics.

Transparent films are intended for use as printable base film.

Product Line	Inkjet printing	IJ20-10R	IJ20-10TR	IJ20-20R	IJ20-114R	IJ20-124R
		white, opaque, glossy, removable adhesive (grey).	white, opaque, glossy, removable adhesive (clear).	white, opaque, matte, removable adhesive (grey).	transparent, glossy, removable adhesive.	transparent, matte, removable adhesive.

#### Product Characteristics

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

##### Physical & Application

Material	calendered vinyl (monomeric)	
Surface finish	white and transparent films: glossy and matte (see product line)	
Thickness (film)	80 µm (0.08 mm)	
Adhesive type	waterbased acrylic, pressure-sensitive	
Adhesive appearance	grey, except for transparent versions; some white films with clear adhesive available (indicated with letter 'T')	
Liner	Kraft paper	
Adhesion	approx. 5 N/25 mm	FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Application method	dry only!	
Applied shrinkage	< 0.5 mm	FTM 14
Application temperature minimum (air and substrate)	+10°C	for flat surfaces
Service temperature (after application)	-50°C to +90°C	
Surface type	flat	
Substrate type	aluminum, glass, PMMA, PC*, ABS, paint	
	*Might require drying with heat before use	
Graphic removal	Removable without heat and/or chemicals from supported substrates.	

**Important notice** Depending on the substrate, adhesive residue can remain after removing the film. The film removing angle can influence the result.

No liability is given for ease or speed of removal of any graphic. Pay attention to adequate air and substrate temperature.

The values above are the results of illustrative lab test measurements and shall not be considered as a commitment from 3M.

#### 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	+4°C to +40°C, out of sunlight, original container in clean and dry area.

The shelf life as defined above remains an indicative and maximum data, subject to many external and non-controllable factors. It may never be interpreted as warranty.

#### Flammability

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

## Durability

The durabilities mentioned in the table below are the results of illustrative lab tests. The values show the best performance expected from these products, provided that the film will be processed and applied professionally according to 3M's recommendations. The durability statements do not constitute warranties of quality, life and characteristics.

The durability of products is also influenced by:

- the type of substrate and thorough preparation of the surface (with 3M™ Surface Preparation System)
- application procedures
- environmental factors
- the method and the frequency of cleaning

**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.

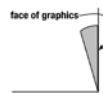
Zone 1 Northern Europe, Italy (north of Rome), Russia

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 sunlight.

<b>Vertical outdoor exposure</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
white	2 years	18 months	12 months
transparent	2 years	18 months	12 months
<b>Interior application</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
interior	2 years	2 years	2 years

3M™ Performance Guarantee and MCS™ Warranty

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.

For detailed graphic construction and application options along with specific Warranty periods, please see the Warranty matrices and Warranty information on [3M Graphic Solutions/Warranties](#).

Visit [www.3mgraphics.com](http://www.3mgraphics.com) for getting more details about 3M's comprehensive graphic solutions.

## 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.
- low surface energy substrates or substrates with low surface energy coating.
- other than flat 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 Graphics subjected to Important Notice

- signs or existing graphics that must remain intact.
- gasoline vapors or spills.
- 3M Commercial Solutions products are not tested against automotive manufacturer specifications!
- Wet application method is not recommended for this film.
- Due to increasing winding-tension towards the roll core, surface impressions might occur with rolls of a length of more than 200 m.

## 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 Inkjet Printing

Adequately Dry Graphics

A too high total physical ink amount on the film results in media characteristic changes, inadequate drying, overlaminate 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.

## 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'<](#)

## Important Safety Remark

Application to Glass

The application of colored or printed film onto glass can lead to glass breakage through thermal expansion of the glass. The local conditions must be examined for the danger of glass break by uneven heat absorption through sun exposure. Type of glass (insulation glass, float glass, LSG, toughened safety glass, semi-tempered glass, etc.), glass dimension, joint condition, flexibility of the sealant, quality of the edge finishing, geographical orientation and partial shadow during sun exposure are the determining factors.

Light color designs and application on the outside of the window are to be preferred. A free non-applied framework of 4 mm around the entire window front can help to dissipate the absorbed warmth. According to common knowledge a thermal crack can occur at temperature differences of approx. 130°C (toughened safety glass), approx. 40°C (float glass) or approx. 110°C (semi-tempered glass).

Coldest place is usually under the framework in the embedded joined window part, the warmest place is typically on the darkest place in the format. Because of the many above mentioned factors, glass breakage cannot be fully predicted, therefore 3M does not accept liability for glass breakage when using this film for window graphics.

## 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](http://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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