



3M™ Scotchcal™ Perforated Window Marking Film 8173 and RG8173

Product Description

Key Features

- Allows the full graphic image to be seen on one side and still allows viewing through the window from the other side
- For MCS™ warranted short term exterior graphics
- Removable

New Special Features

Scotchcal perforated window marking film 8173 supersedes IJ8171 and 8671

Scotchcal perforated window marking film RG8173 supersedes RG8171

8173 white, for piezo ink jet printing and electrostatic imaging

RG 8173 white, for use with Océ Arizona™ 90/180 printer

RG 8173 is identical to 8173 but reverse wound on 4-notched core

Limitations of End Use

The following uses and applications are specifically NOT warranted.

- Applications other than vertical window surfaces.
- If applied to non-vertical window surfaces, ensure that the driver's view is not obstructed.
- Application to substrates with coatings such as anti-reflection and scratch resistance; such coatings may be damaged during film removal.
- Applications that require an optical clear view, but have not been laminated with Overlamine 8914i
- Applications that require an optical clear view, such as vehicle window exteriors, should be laminated with Overlamine 8914i. Failure to apply this laminate could result in obstructed or impaired viewing when the product becomes wet.

3M Commercial Graphics Division policy is not to support applications of perforated window marking when a driver's view is obstructed and/or where local laws prohibit its use.

Some countries have laws or regulations requiring minimum light passage that may limit or preclude the use of this product on vehicle windows. The user is responsible for determining and complying with all applicable standards.

Characteristics

This information is subject to change. These values are typical for unprinted Film and are not intended for use in specifications. Be sure this is the most current Product Bulletin. See **3M Related Literature** at the end of this bulletin.

Characteristic	Description
Film	White on the image side, black on the reverse side 50% open area hole diameter 1,5mm
Thickness (film and adhesive)	0.16 to 0.18 mm
Adhesive type and colour	Clear, pressure sensitive, removable
Liner	Polycoated Paper 135g/m ²
Application surface	Flat
Application substrates	Transparent acrylic, glass, polycarbonate, painted metal between vehicle windows
Minimum application temperature*	12°C
Removal	On glass, acrylic, polycarbonate
Service temperature range	-34°C to +65°C
Tensile strength (min)	> 40 (DIN 527)
Applied shrinkage	< 0.4 mm
Adhesion (glass)	6 N/25 mm
Shelf life	2 years after receipt from 3M (dry conditions, Temp. < 38°C)

**For applications nearing the minimum temperature range, please contact your local technical service representative to confirm suitability of application*

Warranty

The 3M™ MCS™ Warranty statement for Scotchcal™ Perforated Window Graphic Film 8173 is based on chosen media construction.

Description	Protective Clears	Fleet			Exterior Sign 1 st Surface			Exterior Sign 2 nd Surface			Interior		
		1	2	3	1	2	3	1	2	3	1	2	3
SC8173	8914i, 1920	1	1	1	1	1	1	-	-	-	2	2	2
RG8173	8914i, 1920	1	1	1	1	1	1	-	-	-	2	2	2

Zone 1 = North and Central Europe

Zone 2 = Mediterranean Europe

Zone 3 = Middle East and Northern Africa

Fabrication

When using any equipment, always follow the manufacturer's instructions for safe operation.

The graphic consists of printed 3M™ Scotchcal™ Electrostatic Perforated Window Marking Film 8173 and a protective clear. Use 3M™ Scotchcal™ Electrostatic Protective Overlaminate for Perforated Window Film 8914i when an optically clear view is required. If protection for toners is all that is required you can use 3M™ Screen Print Gloss Clear 1920 which is screen printed.

Image Transfer (Electrostatic Printed)

The image is first printed on 3M™ Trident Transfer Paper then transferred to the white side of film 8173. The transfer is made using a hot roll laminator such as the Crest 1600 TTL, Crest 1600 UTL or the Orca III, Model 9542.

Refer to the equipment manufacturer's instructions for detailed operating instructions. Additional information is given below.

1. Be sure nothing obstructs the film as it exits the hot rollers. Film 8173 is not as stiff as other marking films, so obstructing the feed-out may cause the film to buckle at the hot nip and separate from the liner.
2. As the transfer media is removed from the film, it can be seen that half the image remains on the media. The image that is on the film will appear lighter than the same image transferred to non-punched film. Increasing the saturation of the colours using your design station software may compensate for some of the image loss.
3. Laminator setting guidelines. **Note:** The values given below are typical parameters for the transfer lamination process. Therefore if it is not possible to reach the optimum quality, the setting below should be varied in the following order: firstly, speed, then pressure and then temperature until the desired quality is achieved.

Crest 1600 TTL

Temperature Upper Roller 120°C
 Temperature Lower Roller 40°C
 Speed 0.6 meters per minute
 Pressure 60%

Crest 1600 UTL

Temperature Upper Roller 120°C
 Temperature Lower Roller 40°C
 Speed 2 meters per minute
 Pressure 60%

Protec Orca III

Temperature Upper Roller 120°C
 Temperature Lower Roller 40°C
 Speed 0.9 meters per minute
 Pressure 30 - 50 psi

Laminating

Refer to the equipment manufacturer's instructions for detailed operating instructions. Additional information is given below.

These instructions are for applying 8914i protective clear. If you are using 3M™ Screen Print Gloss Clear 1920, refer to Instruction Bulletin 3.12.

Follow Instruction Bulletin 4.8, except use the following pressures to reduce curling.

- Top brake: 20 PSI [Orca III]
- Laminator roll pressure: 20 to 30 PSI [Orca III] 50% (Display) [1600 TTL]
- Minimum back tension

Rolling and Shipping

Do not rewind the finished graphic on the rewind roll of the model 9542 laminator; the 76 mm (3 inch) diameter core is too small a radius for this construction. See Storage and Shipping, below.

Storage and Shipping

- Ship the finished graphics lying flat or in a roll. To roll the graphic, wrap it film side out on a minimum 15 cm (6 inch) diameter core. This prevents the liner and premask from wrinkling or popping off.
- Store the graphics in a clean, dry area, out of direct sunlight, and at a temperature less than 38°C (100°F).

Application

When manufactured, applied and maintained in accordance with 3M recommended procedures, graphics produced on 3M™ Scotchcal™ Perforated Window Graphic Film 8173 and protected with selected 3M™ Scotchcal™ Overlaminates a warranty founded on 3M™ MCS™ will be given by 3M. Performance statements are based upon representative experience obtained from testing throughout Europe. Actual performance will be determined by substrate selection and preparation, maintenance of the marking and exposure conditions.

Premasking & Prespacing Tapes

Overlaminates or Overprint Clear	Prespace Tape	Premask Tape
Unprinted	SCPS-2	SCPS-100
1920 DR	SCPM-19	SCPM-19
9720 UV 9730 UV 9700 UV ink with no overprint	SCPS-2	SCPM-44X
8914, 8914i	Do not use	

See Instruction Bulletin 4.3 for details.

Removal

Film 8173 is removable from glass, acrylic, and polycarbonate within the warranted period of time.

Use heat to remove the graphic. Substrates with coatings such as anti reflection and scratch resistance may be damaged during removal.

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.

Removable Adhesive

Films with removable adhesive can be lifted easily from most suitable substrates and may require the application of heat to add the process.

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.

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.

3M Related Literature

Listed below is related 3M Technical Literature that may be of interest. Contact your local 3M sales or technical representative to order these Bulletins.

Subject	Product Bulletins	Instruction Bulletins
Scotchprint® Exterior Toner Series 8700/8800 ES	8700/8800	4.12
Transferring and Laminating Electrostatically-Printed Images	-	4.7
3M™ Piezo Ink Jet Ink Series 1500 for VUTEK printers	1500	4.45
3M™ Piezo Ink Jet Series 4600 for Scitex pressjet-w	4600	4.43
3M™ Piezo Ink Jet Series 6800 for Océ Arizona 180 printer	6800	4.40
3M™ Screen Printing Ink Series 9700UV (Line and 4-Colour Half Tone)	9700	3.4 3.13
3M™ Scotchcal™ Optically Clear Overlamine 8914i ES	8914i	-
3M™ Application Tapes Premasking and Prespacing for Films	-	4.3
Substrate selection and Surface Preparation	-	5.1
Application	-	5.4
Removal	-	6.5
3M MCS Warranty Bulletin		

Technical Assistance

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

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