



Scotchcal™ Changeable Graphic Film

IJ3555-10 and RG3555-10

For Piezo Inkjet Printing Only

Product Description

This 4-mil film has excellent hiding power and pressure-sensitive adhesive. Because it's changeable, this short-term film removes quickly and easily without adhesive residue. It is ideal for indoor and outdoor signs, and fleet and commercial vehicle graphics. Use piezo inkjet printing.

Recommended Types of Graphics and End Uses

When constructed and used as described in this Bulletin, these types of graphics and end uses may be warranted by the 3M™ MCS™ Warranty or the 3M Performance Guarantee. Please read the entire Bulletin for details.

- Commercial vehicle, transit or fleet graphics, emblems or striping
- Outdoor and indoor graphics and signs
- Vending or dispensing machine and cooler graphics

Limitations of End Uses

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

Unsuitable End Uses for This Film

- Graphics applied to:
 - Corrugated, channels, complex curves, or highly-irregular surfaces or sharply raised areas
 - Stainless steel
 - Graphics printed with 3M UV screen printing inks
 - Non-3M films
 - Paint that is not thoroughly cured or dried
 - Substrate surfaces that are not clean and smooth (little or no variation in texture)
- Film without graphic protection under these conditions:
 - Vehicle graphics
 - Exposure to abrasive conditions, harsh cleaners or chemicals
 - Where warranty table does not indicate a construction option
- Graphic removal from:
 - Applications with poor paint-to-substrate adhesion
 - Painted wallboard
 - Existing graphics on flexible substrates that must remain intact
 - Aged paint or metal that may have surface oxidation or chalking
 - Outdoor, horizontal applications
- Spaced letters or emblems
- Graphic subjected to gasoline vapors or spills at gas pumps, automobile fuel-tank ports, or top-feeding petroleum tankers
- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684 for alternatives

Wall Graphics

Two-mil cast films are typically the best choice for indoor smooth surface wall graphics, although four-mil films may be suitable for shorter term applications. In either case, the user is responsible for determining the product's suitability, including adhesion and, if required, removal characteristics. Due to the wide variability of smooth indoor walls, neither finished graphics nor removal is warranted, even for removable or changeable films. Instruction Bulletin 5.37 provides comprehensive information for the most successful wall graphics film selection and application.

Important Information About Bus Applications

Film used on buses must not be applied so as to restrict the safe use of emergency window exits. See the most current version of Instruction Bulletin 5.4 for details.

Compatible Products

3M Graphic Materials

This Bulletin provides details about the base film and construction options and warranty. Additional specific information about compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this bulletin.

Piezo Inkjet Printers and Inks

See the Warranty Matrix to determine if you need an IJ, FN or RG prefix film.

Ink Series

Printer

- 3M™ Piezo Inkjet Ink Series 2200UV EFI™ VUTEk® PV 200 Printer
- 3M™ Piezo Inkjet Ink Series 2600UVv2 3M™ Printer 2500UV
- 3M™ Piezo Inkjet Ink Series 2700UV Durst Rho 160R Printer
- 3M™ Piezo Inkjet Ink Series 2800UV EFI™ VUTEk® QS2000/QS3200 Printers
- 3M™ Piezo Inkjet Ink Series 5400UV HP Designjet H35000 and H45000
- 3M™ Piezo Inkjet Ink Series 1500v2 EFI™ VUTEk® 150, 2360/3360, 3300/5300 and 3000/5000 Printers
- 3M™ Piezo Inkjet Ink Series 4600 HP Scitex Pressjet-W™ Printer
- 3M™ Piezo Inkjet Ink Series 4800 HP Scitex Tj8300 Series Digital Press
- 3M™ Piezo Inkjet Ink Series 6000 Océ Arizona 30s Printer
- 3M™ Piezo Inkjet Ink Series 6800 Océ Arizona 180 and 90 Printers

For the best results, order films for Scitex printers on a 6 inch notched core.

Graphic Protection Options

- 3M™ Scotchcal™ Gloss Overlamine 8518 *only for Performance Guarantee constructions*
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520
- 3M™ Piezo Ink Jet Protective Clear 8530
- 3M™ Scotchcal™ Ultra Matte Overlamine 8915 ES
- 3M™ Screen Printing Gloss Clear 1920DR
- 3M™ Screen Printing Gloss Clear 9720UV
- 3M™ Screen Printing Gloss UV Clear 9720i

Application Tapes

- 3M™ Premasking Tape SCPM-44X
- 3M™ Premasking Tape SCPM-3

Characteristics

These are typical values for unprocessed product; processing may change the values. Contact your 3M representative for a custom specification.

Physical Characteristics

Characteristic	Value
Material	Vinyl
Color	White, opaque
Gloss	Matte
Thickness	Without adhesive: 4 mils (0.10 mm) With adhesive: 4.5-5 mils (0.11-0.13 mm)

Continued on the next page.

Characteristic	Value
Adhesive type	Pressure sensitive
Adhesive color	Gray
Liner	Polyethylene-coated paper
Tensile strength	13.5 pounds/inch at 73°F (2.3 kg/cm at 23°C) (minimum)
Adhesion <i>24 hours after application</i>	Aluminum, anodized: 1.8 pounds/inch (0.32 kg/cm) Fruehauf pre-painted panels: 0.6 pounds/inch (0.12 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt
Flammability	Call 1-800-328-3908.

Application Characteristics

Characteristic	Value
Finished graphic application recommendation	Surface type: Flat, with and without rivets Substrate type: Acrylic, aluminum, glass (uncoated), painted metal, polycarbonate, rigid vinyl, and painted wood (smooth) Application temperature: 28° to 100°F (-2° to 38°C) <i>air and substrate</i> Application method: Dry
Applied film shrinkage	0.032 inch (0.8 mm) 0.015 inch (0.4 mm)
Finished graphic exposure temperature	-40° to +150°F (-40° to +66°C)
Graphic removal	Removable without heat and chemicals when ambient and substrate temperature are greater than 28°F (-2°C)

Warranty Information

The warranted durability given in the Product Bulletin that is current at the time you purchased the film is the one that 3M will honor. **The warranties in the following table(s), given in years, are for finished graphics exposed in a vertical exposure in the United States except the Desert Southwest.** See the warranty sections following this table for additional information.

3M™ MCS™ Warranty for Finished Graphics

Veh = Vehicle
Out = Outdoor Signs
In = Indoor Signs

Note: Use films with an IJ prefix unless otherwise noted.

Printer	VUTEk 150, 2360/ 3360, 3300/5300, 3000/5000			XLJet Series 1200, 1500			Pressjet-W		
Ink Series	1500v2			4400			4600		
Graphic Protection	Veh	Out	In	Veh	Out	In	Veh	Out	In
8519, 8520, 8915	2	2	2	2	2	2	2	2	2
1920DR	—	—	—	—	—	—	2	2	2
9720UV	—	—	—	—	—	—	2	2	2
9720i	2	2	2	2	2	2	2	2	2
8530	2	2	2	2	2	2	—	—	—
none	—	2	2	—	2	2	—	2	2

Continued on the next page

Printer	TJ8300 Series Digital Press			Arizona 30s			Arizona 180 and 90 Use RG prefix films		
Ink Series	4800			6000			6800		
Graphic Protection	Veh	Out	In	Veh	Out	In	Veh	Out	In
8519, 8520, 8915	2	2	2	2	2	2	2	2	2
1920DR	2	2	2	2	2	2	2	2	2
9720UV	2	2	2	2	2	2	2	2	2
9720i	2	2	2	2	2	2	2	2	2
8530	2	2	2	2	2	2	2	2	2
none	—	2	2	—	2	2	—	2	2

Printer	VUTEk PV200			Printer 2500UV			Rho 160R and 351R		
Ink Series	2200UV			2600UVv2			2700UV		
	Use IJ Film			Use IJ Film			Use IJ Film		
Graphic Protection	Veh	Out	In	Veh	Out	In	Veh	Out	In
8519, 8520, 8915	2	2	2	2	2	2	2	2	2
1920DR	—	—	—	2	2	2	—	—	—
9720UV	2	2	2	2	2	2	2	2	2
9720i	2	2	2	2	2	2	2	2	2
none	—	2	2	—	2	2	—	2	2

Printer	VUTEk QS2000 and QS3200			Designjet H35000 and H45000			Mimaki UJV-160		
Ink Series	2800UV			5400UV			LF-200		
Graphic Protection	Veh	Out	In	Veh	Out	In	Veh	Out	In
8519, 8520, 8915	2	2	2	2	2	2	2	2	2
1920DR	—	—	—	—	—	—	—	—	—
9720UV	2	2	2	2	2	2	—	—	—
9720i	2	2	2	2	2	2	—	—	—
none	—	2	2	—	2	2	—	2	2

3M™ MCS™ Warranty
for Non-Vertical and
Desert Southwest

Use the years of warranted durability for your graphic construction in the above table and these following formulas to determine other durabilities.

Outdoor Exposure	Percentage of U.S. Vertical Outdoor Exposure	Example
U.S. Non-vertical	50% (0.5)	0.5 x 2 years = 1 years
Desert Southwest - Vertical	70% (0.7)	0.7 x 2 years = 1.4 years
Desert Southwest - Non-vertical	35% (0.35)	0.35 x 2 years = 0.7 years

3M Performance Guarantee
Graphic Constructions
and Durability
For 3M Product Performance Only

Graphics constructed as described in the table below are eligible for the 3M Performance Guarantee when exposed in a vertical exposure in the United States. This warranty covers the performance of only the recommended 3M products used in the graphic construction when imaged with the printers and OEM inks listed in the most current version of Performance Guarantee Printer and Ink Matrix at www.3Mgraphics.com. That Matrix may also list certain restrictions for using the film covered in this Bulletin. 3M will honor the warranty given in the version of this Bulletin that was current at the time you purchased the film.

Film	Graphic Protection	Vehicle, Outdoor, Indoor <i>Vertical Exposure, Durability in Years</i>	Inks and Printers
IJ3555	8518 8519 8520 1920DR 9720UV	2	See the Performance Guarantee Printer and Ink Matrix at www.3Mgraphics.com

Removal Warranty
for 3M™ MCS™ Warranty and
Performance Guarantee

If the film cannot be successfully removed or an excessive amount of adhesive residue remains on the surface, 3M will reimburse a portion of extra removal costs.

**Removal Labor Reimbursement
Remedy for
Removable and
Changeable Films**

Orientation	Remedy
Vertical	Same as Warranted Durability

**Removal
Warranty
Exceptions**

- This film is not designed for short-term graphics on painted wallboard and may cause damage upon removal from painted surfaces.
- Removal from a pre-existing graphic will damage that graphic.
- Aged paint and metals must be tested to ensure removability. Surface oxidation or chalking may result in adhesive residue upon removal.
- Paint that is not firmly bonded to the substrate may be damaged when removing the film.
- Paint that is not properly cured may prevent the film from being removed.

**Paint Refurbishing
Reimbursement Policy**
for 3M™ MCS™ Warranty

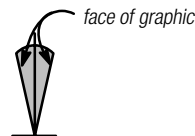
Warranty Stipulations for
Van, Bus, Recreational Vehicles
or Automobile ("Vehicle")

Claims for paint damage for certain vehicle graphics will be considered only if a Pre-Installation and Inspection Report (see Instruction Bulletin 5.36) was completed prior to graphic installation and is submitted with any claim for paint damage sustained during the removal of 3M removable or changeable graphic film from vehicles. A separate report for each vehicle involved in the claim is required.

**Warranty Details and
General Exceptions**

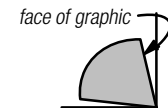
Definitions

Vertical Exposure



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

Non-vertical Exposure



The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal.

Desert Southwest

Graphics exposed to solar energy more than half of the time in Arizona, New Mexico and the desert areas of California, Nevada, Utah and Texas. A detailed map is available upon request.

Vehicles

Refers to commercial fleet, buses, vans and automobiles unless otherwise noted.

Graphic Performance Life

The actual performance life of a graphic is affected by all of the following.

- Correct combination of 3M-recommended graphics products
- Printing processes
- Adequate ink drying and/or UV curing
- Selection and preparation of the substrate
- Surface texture
- Application methods
- Angle and direction of sun exposure
- Environmental conditions
- Cleaning or maintenance methods

Application Outside the U.S.

Contact the 3M organization for that country.

Graphics Made with Components Not Sold or Recommended by 3M

The 3M warranty does not cover finished graphics made with other manufacturers' inks, film, graphic protection and/or application tapes. The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include non-3M graphic products.

The 3M Performance Guarantee covers selected 3M graphic products when used with qualified printers and OEM inks. See Product Bulletin: PG Matrix.

Application to Glass

3M accepts no liability for glass breakage when using this film for window graphics. See Instruction Bulletin 5.1 for details.

Graphic Protection

Any graphic exposed to abrasive conditions (including vehicles), harsh cleaners or chemicals must include graphic protection in order to be warranted. Abrasion damage and gloss loss are not covered.

Rivets

The film will tent around rivets; which is not covered by the any warranty.

Warranty and Limited Remedy

The following is made in lieu of all other express or implied warranties, including any implied warranty of **merchantability** or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom or usage of trade: all 3M products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin. 3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. These remedies are exclusive. **In no case shall 3M be liable for any direct, indirect, or consequential damages, including any labor or non-3M materials charges.**

See the Graphics Market Center Warranty Brochure, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

Piezo Inkjet Printing

Ink

Always read and follow the ink manufacturer's written instructions on usage.

Total Ink Coverage for 3M™ MCST™ Warranty and Performance Guarantee Constructions

The maximum recommended total ink coverage for this film is:

270% when printed with all approved 3M piezo solvent inks.

280% when printed with all approved 3M UV inks.

250% when printed on the Mimaki JV5 Series printer with HS ink series (Performance Guarantee).

Do not exceed the recommended total ink coverage for the ink series used on this film. Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. Refer to the Product & Instruction Bulletin for the ink system being used for additional details about total ink coverage.

Important Note!
Adequately Dry Graphics

Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty.

Always build enough time into your process to ensure adequate drying of the graphic. Poorly dried film may become soft and stretchy, and the adhesive may become too aggressive. This can cause difficulty when applying an overlamine, rolling the graphic, and applying the film. See the ink's Instruction Bulletin for more details.

Graphic Protection

- Graphic protection can improve the appearance, performance and durability of your graphic. It is required for many warranted constructions. Refer to the warranty tables.
- Apply overlaminates with a cold roll laminator.

Cutting

The following are common cutting methods for this film. See Instruction Bulletin 4.1 for details.

- Bandsawing
- Hot kiss cutting
- Drum-type electronic cutting
- Flat-bed electronic cutting
- Guillotine
- Hand cut

Application Tapes

**When to Use
 Premasking Tape**

- As an application aid to increase stiffness, and prevent stretching and damage during application.
- When little or no liner is exposed.

**When to Use
 Prespacing Tape**

- Hold cut and weeded letters or graphics in registration after removing the film liner.
- Protect cut graphic parts from scratching or damage during application.
- Use when large amounts of liner are exposed.

How to Select a Tape

Locate the graphic protection on your graphic in the table below and use the corresponding tape. See Instruction Bulletin 4.3 for complete details.

EXAMPLE: If the film is protected by overlamine 8519 and you want to premask the film, use premasking tape SCPM-3.

Application Tape	Graphic Protection						
	None	8519 8520 8915	8908 8909	8530	1920DR	9720i 9720UV	8518
Premasking SCPM-3	■ ¹	■	■	■	■		■
Premasking SCPM-44X	■ ²					■	

1. All solvent inks.
 2. All UV inks.

**Application and
 Installation**

Install the film using the dry application method.

Refer to the **3M Related Literature** section, located at the end of this bulletin, for a list of the Instruction Bulletins that may be needed to apply or install this film.

Adhesive

This film has a pressure-sensitive adhesive. It bonds to the surface even with light pressure and cannot be repositioned.

Always work from the center out to the edges of the graphic to reduce the risk of trapping air and creating bubbles. Use an air release tool to aid in removing air bubbles. See Instruction Bulletin 5.4 for details.

Rivets

This film will tent when applied over rivets. If the rivets are closely spaced, the film will bridge between rivets. Tented or bridged film may fail prematurely, which is not covered by any 3M warranty. For the best appearance and durability, 3M recommends cutting around the rivet and then re-squeegeeing around the rivet.

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 for general maintenance and cleaning information.

Removal

This film can be easily removed without heat or chemicals. Most graphics can be removed and leave little or no adhesive residue on the substrate. The ease and rate of removal depends on a number of factors. See Instruction Bulletin 6.5 for details.

Shelf Life, Storage and Shipping

Shelf Life

Total shelf life: 2 years from the date on the original box
Up to 2 years unprocessed, **OR** process within 1 year **and** apply within 1 year of processing

Storage Conditions

- 40° to 100°F (4° to 38°C)
- Out of sunlight
- Clean dry area
- Original container
- Bring the film to print room temperature before using

Shipping Finished Graphics

Flat, or rolled printed side out on 5 inch (13 cm) or larger core. This helps prevent the liner and, if used, the application tape from popping off.

Health and Safety



CAUTION

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information. To obtain MSDS sheets for 3M products go to 3M.com/MSDS, or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

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

3M Related Literature

Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. Current Bulletins are available at 3Mgraphics.com. The following applicable Bulletins provide information and processes you need to properly make the graphics described in this Bulletin. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
3M™ Piezo Inkjet Ink Series 2200UV	PB-IB	2200UV
3M™ Piezo Inkjet Ink Series 2600UV	PB-IB	2600UV
3M™ Piezo Inkjet Ink Series 2700UV	PB-IB	2700UV
3M™ Piezo Inkjet Ink Series 2800UV	PB-IB	2800UV
3M™ Piezo Inkjet Ink Series 5400UV	PB-IB	5400UV
Mimaki Ink Series LF-200 <i>manufactured by 3M</i>	PB-IB	LF-200
3M™ Piezo Inkjet Ink Series 1500v2	PB-IB	1500

Subject	Type	Bulletin No.
3M™ Piezo Inkjet Ink Series 4400	PB-IB	4400
3M™ Piezo Inkjet Ink Series 4600	PB-IB	4600
3M™ Piezo Inkjet Ink Series 4800	PB-IB	4800
3M™ Piezo Inkjet Ink Series 6800	PB-IB	6800
3M™ Piezo Inkjet Ink Series 6000	PB-IB	6000
3M™ Scotchcal™ Luster Overlaminate 8519 and 8520	PB	8519/8520
3M™ Piezo Inkjet Protective Clear 8530	PB	8530
3M™ Scotchcal™ Ultra-Matte Overlaminate 8915	PB	8915
3M™ Screen Print Gloss Clear 1920DR and Low Gloss 1930	PB	1900
- Applying screen printing clear 1920DR and 1930	IB	3.12
3M™ Screen Print UV Gloss Clear 9720i	PB-IB	9720i
Cold roll lamination	IB	4.22
Scoring and cutting	IB	4.1
Using 3M application tapes; premasking and prespacing for films	IB	4.3
Application, substrate selection, preparation and substrate-specific application techniques	IB	5.1
Application, special applications and vehicles	IB	5.4
Application, general procedures for indoor and outdoor dry applications	IB	5.5
Applicator's quick reference guide for vehicle film	IB	5.35
Application: guidelines for auto, van, bus and inspection forms	IB	5.36
Storage, handling, maintenance, removal	IB	6.5
3M Graphics Center Warranty Brochure	go to www.3Mgraphics.com , Warranties	

Warranties and Matrices

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Bulletin Change Summary

Added ink series 4400 and LF-200 and overlaminate 8915 as Compatible Products. The MacDermid ColorSpan printer is now called HP Designjet H35000 and H45000 printers and use ink series 5400UV. A warranty period of 3 years was incorrectly shown for Performance Guarantee in Release D of this Bulletin; it now correctly shows 2 years. The maximum recommended total ink coverage for this film is **270%** when printed with all approved 3M piezo solvent inks; **280%** when printed with all approved 3M UV inks; **250%** when printed on the Mimaki JV5 Series printer with HS ink series (Performance Guarantee). Film FN3555 has been discontinued.



Commercial Graphics Division
 3M Center, Building 220-12E-04
 PO Box 33220
 St. Paul, MN 55144-3220 USA
 General Info. 1-800-374-6772
 Technical Info. 1-800-328-3908
 Fax 1-651-736-4233

3M Canada
 P.O. Box 5757
 London, Ontario
 Canada N6A 4T1
 1-800-265-1840
 Fax 519-452-6245

3M México, S.A. de C.V.
 Av. Santa Fe No. 55
 Col. Santa Fe, Del. Alvaro Obregón
 México, D.F. 01210
 52-55-52-70-04-00
 Fax 52-55-52-70-22-77

3M Puerto Rico, Inc.
 Puerto Rico Industrial Park
 P.O. Box 100
 Carolina, PR 00986-0100
 787-620-3000
 Fax 787-750-3035

www.3Mgraphics.com

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