



Scotchcal™ Graphic Film

IJ35E-20R

A good choice for the environment!

For Piezo Inkjet, Screen and Electrostatic Printing

Product Description

This 4-mil film has pressure-sensitive adhesive and is removable. It is ideal for short-term indoor and outdoor graphic applications. Possible uses include signs, flat vehicle, fleet or commercial vehicles, trade show and point-of-purchase displays, exhibits and architectural applications. Use for piezo inkjet, screen and electrostatic printing.

3M's Environmental Solutions

3M recognizes that sustainability involves much more than a product offering. You can learn about 3M's ISO certification, EHS Management system, 3P program, LCM review and other sustainability programs at www.3m.com/sustainability. These programs exemplify how 3M strives to responsibly operate in a manner that can help make the world we live in a better place. That is why the Dow Jones Sustainability Index has included 3M in the index for 9 consecutive years.

3M is also taking steps at the product level by offering new alternatives such as IJ35E polyolefin film and polyolefin 3M™ Scotchcal™ Overlaminates 8908 and 8909, which have no monomeric plasticizers or polyvinylchloride in their constructions and are made with less solvent in manufacturing when compared to traditional solvent based adhesive products. Chloride free constructions such as these eliminate halogen related disposal concerns. When printed with UV ink, VOC emissions associated with solvent inks are dramatically reduced, resulting in a graphic construction that has less impact on the environment.

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.

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	Polyolefin
Color	White, opaque
Gloss	Matte
Thickness	Without adhesive: 4 mils (0.10 mm) With adhesive: 4.5 - 5 mils (0.11-0.13 mm)
Adhesive type	Pressure sensitive
Adhesive color	Gray
Liner	Polyethylene-coated paper

Application Characteristics

Characteristic	Value
Finished graphic application recommendation	Surface type: - Most graphics: Smooth, flat with or without rivets; simple curves - Liquid Cleared: Flat and smooth (no surface texture) Substrate type: Metal, rigid plastic and painted substrates Application temperature: 40° - 100°F (4° - 38°C) <i>air and substrate</i> Application method: Dry
Finished graphic exposure temperature	-40° to 200°F (-40° to +93°C)
Graphic removal	Removable with heat; leaves little or no adhesive residue. Removal is not warranted. Removal temperature: Minimum ambient and substrate temperature 28°F (-2°C)

Warranty and Durability

3M Basic Product Warranty

This product has been tested and is believed to be a good product when used as recommended in this Bulletin. The film is covered by the 3M Basic Product Warranty and is guaranteed to be free of physical and manufacturing defects.

See the 3M Graphics Market Center Warranty Brochure for the complete warranty and remedy details. There is no warranty for the following.

- printability
- visual appearance
- fitness for use
- removability
- durability

Expected Performance Life

12 months in a vertical exposure may be expected with typical usage.

3M Product and Instruction Bulletins provide practical recommendations for using this product in a way that maximizes performance, but using other 3M products or procedures with this film does not change the terms of the 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.

Fabrication

All Printing Methods

This film has been optimized to perform well with a variety of piezo inkjet printers and inks as well as screen printing inks and processes. It is the graphic manufacturer's responsibility to determine the film's suitability for use with their printers and inks.

To maximize the film performance:

- Use graphic protection. 3M™ Scotchcal™ Luster Overlaminate 8509 is a cost-effective option for 3M's promotional graphic films.
- Thoroughly dry the ink and film or properly cure the ink before applying graphic protection, and before storing or installing a graphic.
- Always use the dry application method.

Piezo Inkjet Printing Only

- Be aware that using sheeting film on a flat-bed piezo inkjet printer may produce printing defects.
- The typical maximum ink limit is 250%.
- If you are storing sheeted and stacked finished graphics for an extended period of time, leave an unprinted margin (about 1/4 inch) to allow for possible shrinkage before trimming the graphic.

Graphic Protection

To avoid abrasion damage and gloss loss, graphics require graphic protection such as an overlaminate or printed clear.

Piezo Inkjet Printing

Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlaminate lifting, and/or poor graphic performance.

Color Profiles

Always use a color profile and machine calibrations designed for non-vinyl film to optimize printing results.

Immediately after printing with solvent ink, the top layer of the film remains soft for several hours. During this time, abrasion and pressure to the printed surface can mar it. Allow the film to dry, *unrolled*, for at least 8 hours at least 75°F (24°C) before applying an overlaminate or screen-printed clear coat, cutting, trimming, mounting or applying the graphic.

Important Note!

Adequately Dry Graphics

Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure.

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 overlaminate, rolling the graphic, and applying the film.

Graphics Manufacturing

Heat Sensitivity

This film can be more heat sensitive than vinyl film. Do not subject it to excessive heat during graphic fabrication. Excessive heat may cause the graphic to shrink or curl. Heated rollers may mar the surface.

Protect the Printed Graphic

After printing, this film has less abrasion resistance than vinyl film. Be careful not to scratch or mar the surface prior to applying the overlaminate or clear coat.

Screen print clears provide some abrasion resistance, but not as much as an overlaminate. To prevent any damage, use an application tape, handle gently during installation, and do not mar the surface with tools after the application tape is removed.

Application and Installation

Working with Rivets

Install the film using the dry application method.

This film can be more heat sensitive than vinyl film. Do not subject it to excessive heat during graphic application. Excessive heat may cause the graphic to shrink or curl. When applying over rivets, use a heat gun or torch only to heat only the rivets. This film will tent when applied over rivets. If the rivets are closely spaced, the film will bridge between rivets.

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.

Heavy Metals

To the best of our knowledge, 3M film IJ35E-20R does not contain any intentionally added Lead (Pb), Cadmium (Cd), Hexavalent Chromium (Cr6+) or Mercury (Hg), polybrominated diphenyl compounds (PBB) or polybrominated diphenyl ether compounds (PBDE). The user is responsible for determining and complying with all applicable standards and regulations.

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 Graphic Protection Products <i>overview of all graphic protection products and specific information on most overlaminates</i>	PB	GP-1
Scoring and cutting	IB	4.1
Application, substrate selection, preparation and substrate-specific application techniques	IB	5.1
Application, general procedures for indoor and outdoor dry applications	IB	5.5
A guide to understanding and applying graphics to common indoor and outdoor wall surfaces	IB	5.37
Storage, handling, maintenance, removal	IB	6.5

Warranties

3M Graphics Center Warranty Brochure

Go to www.3Mgraphics.com, Warranties

3M, and Scotchcal are trademarks of 3M Company.

Bulletin Change Summary

Regarding fabrication of graphics, be aware that using sheeting film on a flat-bed piezo inkjet printer may produce printing defects.

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