

IJ181 Ideal for Stainless Steel Substrates

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Product Description

- For Solvent, UV, and Latex Inkjet printing and Cut Graphics
- 2-mil, white, vinyl film

Product Features

- Specifically formulated for use on stainless steel
- Pressure-activated adhesive for easy sliding, tacking, snap-up and repositioning
- Flexible; conforms to moderate curves, corrugations and rivets
- Permanent film
- Expected Performance Life of 10 years (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface in a non-abusive environment)

Recommended Types of Graphics and End Uses

- Outdoor stainless steel applications
- Indoor and outdoor graphics and signs
- Commercial vehicle and fleet graphics, emblems or striping
- Bus graphics
- Standard vehicle graphics

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.

Recommended Compatible Products

See 3Mgraphics.com/warranties for a complete list of compatible products that are approved by 3M for use with the base film covered in this Bulletin and used for the creation of a graphic that may be eligible for the 3M™ MCS™ Warranty or 3M Performance Guarantee.

OEM Inkjet Inks and Printers for the 3M Performance Guarantee

See the [3M Performance Guarantee Matrix](#) for a complete list of compatible OEM Inkjet Inks and Printers that are approved by 3M for use with the base film covered in the Bulletin and used for the creation of a graphic that may be eligible for the 3M Performance Guarantee.

Graphic Protection

- [3M™ Scotchcal™ Gloss Overlamine 8518](#)
- [3M™ Scotchcal™ Luster Overlamine 8519](#)
- [3M™ Scotchcal™ Matte Overlamine 8520](#)
- [3M™ Scotchcal™ Luster Overlamine 8908](#)
- [3M™ Scotchcal™ Matte Overlamine 8909](#)
- [3M™ Scotchcal™ Ultra Matte Overlamine 8915](#)
- [3M™ Screen Print Gloss Clear 1920DR](#)
- [3M™ Screen Print UV Gloss Clear 9740i](#)

Application Tapes

See [3M Instruction Bulletin AT-1](#) to determine what application tape is recommend for your film or finished graphic.

Other Products

- [3M™ Edge Sealer 3950](#)

Certificate of 3M™ MCS™ Warranty

Graphics manufacturers who produce graphics made with all 3M Graphics Products, including 3M Ink purchased through a qualified 3M Distributor or 3M Printing Partner, may register to be recognized with a Certificate of 3M™ MCS™ Warranty. Only graphics manufacturers having a current Certificate of 3M™ MCS™ Warranty are eligible to extend this warranty to their customers.

Characteristics

These are typical values for unprocessed product. Processing may change the values.

Physical Characteristics

Characteristic	Value
Material	Vinyl
Film Color	White, opaque
Thickness	Without adhesive: 2 mil (0.05 mm) With adhesive: 3–4 mil (0.08–0.10 mm)
Adhesive	Pressure-activated (slide, tack, snap-up, reposition)
Adhesive Color	Gray
Liner	Polyethylene-coated paper
Tensile Strength	5 pounds/inch at 73 °F (0.9kg/cm at 23 °C) minimum
Chemical Resistance	<ul style="list-style-type: none"> • Resists mild alkalis, mild acids, and salt • Excellent resistance to water (<i>does not include immersion</i>)
Flammability	ASTM E84 reports: LJ181 or go to the On-line Product Catalog at 3Mgraphics.com All other test reports: call 1-800-328-3908

Application Characteristics

Characteristic	Value
Finished Graphic Application Recommendation	<p>Surface type: flat, with and without rivets, simple curves, compound curves, and corrugations</p> <p>Substrate type: Stainless steel, paint (check adhesion to powder-coated or water-based paints), ABS resins, fiberglass reinforced plastics, glass and aluminum</p> <p>Application temperature: air and substrate</p> <ul style="list-style-type: none"> • Flat without rivets: 50–100 °F (10–38 °C) • Flat, Curves or corrugations with rivets: 55–100 °F (13–38 °C)
Adhesion	Stainless steel: 6 pounds/inch (1.1 kg/cm)
Temperature Range After Application	-40 to +200 °F (-40 to +93 °C)
Graphic Removal	Permanent

Warranty Information

Warranty Coverage Overview

The warranty coverage for each graphic is based on the user both reading and following all applicable and current 3M Product and Instruction Bulletins. The warranty period for eligible graphics is as stated in the 3M Graphics Warranties Matrices found at [3MGraphics.com/warranties](https://www.3M.com/graphics/warranties), at the time that the film was purchased. The warranty period may be reduced and stipulations may apply for certain constructions and applications, as covered in the 3M Graphics Warranties Bulletin found at [3MGraphics.com/warranties](https://www.3M.com/graphics/warranties).

The warranties set forth in the Warranty Bulletin are made in lieu of all other express or implied warranties, including any implied warranty of merchantability, fitness for a particular purpose, or arising out of a course of dealing, custom or usage of trade.

3M Basic Product Warranty

3M Graphics Products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in its applicable 3M Graphics Product Bulletin and as further set forth in the [3M Graphics Warranties Bulletin](https://www.3M.com/graphics/warranties).

Limited Remedy

The limited remedy applicable to each warranty is addressed in the 3M Graphics Warranties Bulletin found at [3MGraphics.com/warranties](https://www.3M.com/graphics/warranties).

Limitation of Liability

Except where prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED IN THE 3M GRAPHICS WARRANTIES BULLETIN), INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LABOR, NON-3M MATERIAL CHARGES, LOSS OF PROFITS, REVENUE, BUSINESS, OPPORTUNITY, OR GOODWILL) RESULTING FROM OR IN ANY WAY RELATED TO 3M'S GRAPHICS PRODUCTS, SERVICES, or THIS BULLETIN. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought.

Warranty Period Matrices

See the 3M Graphics Warranties Matrices at [3MGraphics.com/warranties](https://www.3M.com/graphics/warranties), for warranty period information specific to your film.

Additional Limitations

See the 3M Graphics Warranties Bulletin at [3MGraphics.com/warranties](https://www.3M.com/graphics/warranties), for terms, additional limitations of your warranty, if any, and limitations of liability.

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by:

- the combinations of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.

Graphics Manufacturing

CAUTION

Before using any equipment, always read the manufacturer's instructions for safe operation.

Inkjet Printing

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

Total Ink Coverage

The maximum recommended total ink coverage for this film is:

- **270%** when printed with all approved 3M solvent inkjet inks.
- **280%** when printed with all approved 3M UV inkjet inks.
- **280%** when printed with all approved 3M latex inkjet inks.

Do not exceed the recommended total ink coverage for the ink series used on this film. Having too high a total physical ink amount on the film results in media characteristic changes, incomplete drying, overlamine lifting, and/or poor graphic performance. For additional details about total ink coverage, refer to the 3M Product and Instruction Bulletin for 3M inks or the [3M Performance Guarantee Matrix](#) for OEM inks.

Completely Dry Graphics

IMPORTANT NOTE

Incomplete drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under any 3M Graphic Warranty.

See the ink's 3M Product and Instruction Bulletin for more details.

Cutting

See [3M Instruction Bulletin 4.1](#) for Sheeting, Scoring and Film Cutting details.

Graphic Protection

Graphic protection may improve the appearance, performance and durability of the graphic. Click on the graphic protection options listed in the "Recommended Compatible Products" on page 1 or see the [3M Graphics Market Product Catalog](#), for more information.

Application Tapes

There are two types of application tapes. See [3M Instruction Bulletin AT-1](#) to determine what application tape is recommend for your film or finished graphic.

Premasking Tape

Increases stiffness during application while preventing stretching and damage. Use when little or no liner is exposed. See [3M Instruction Bulletin 4.3](#) for complete details.

Prespacing Tape

Holds cut and weeded letters or graphics in place during application and after removing the film liner, while preventing stretching and damage. Use when large amounts of liner are exposed. See [3M Instruction Bulletin 4.3](#) for complete details.

Application and Installation

In addition to other 3M Bulletins specified in this document, the following Bulletins provide details that you may need to successfully apply a graphic.

- [3M Instruction Bulletin 4.22](#). Lamination Basics for Inkjet Printed Graphics.
- [3M Instruction Bulletin 5.1](#). Select and Prepare Substrates for Graphic Application
- [3M Instruction Bulletin 5.4](#). Application, Fleet Trucks.
- [3M Instruction Bulletin 5.5](#). Application, General Procedures for Interior and Exterior Dry Application.

CAUTION

UV inkjet inks may crack if too much heat is used during graphic application to complex curves and deep contours as well as around rivets. When using heat during application, make sure the film surface temperature does not exceed 212° F (100° C). For best results, **always do a test application** of a printed graphic to determine how much heat can be used without damaging the image.

Pressure-activated Adhesive

The pressure activated adhesive on this film offers:

- smooth sliding into position on a substrate;
- fast finger tacking to check position; and
- easy snap-up and repositioning when you need it.

The **snap-up and reposition feature is lost:**

- when firm pressure with a squeegee or other application tool is applied.
- at application temperatures above 100° F (38° C) even if only light finger pressure was used for tacking.
- if any part of the film is removed from the original liner and reapplied to the same or another liner.
- solvent from inkjet ink has not completely dried or cured, which affects both slideability and snap-up.

Stretchability

Many finished graphic constructions can be stretched without primer or relief cuts and maintain lift resistance.

- For Straight trucks, semi-trucks and semi-trailers, see [3M Instruction Bulletin 5.4](#) for details and exceptions.

3M™ Tape Primer 94

3M recommends that where the film will be stretched, use primer to maximize a graphic's bond to its substrate.

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). See [3M Instruction Bulletin 6.5](#) for details.

Removal

Removal requires heat and/or chemicals. The ease and rate of removal depends on a number of factors. See [3M Instruction Bulletin 6.5](#) for details.

Shelf Life, Storage and Shipping

Shelf Life

The shelf life is **never more than 3 years** from the date of manufacture on the original box.

If you process the film, the shelf life is changed to **1 year** from the processing date, but not later than the 3 year maximum from the manufacturing date.

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 6 inch (15 cm) or larger core. This helps prevent the application tape, if used, from popping off.

Health and Safety

CAUTION

When handling any chemical products, read the manufacturers' container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information. To obtain SDS sheets for 3M products go to 3M.com/SDS, 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.

Bulletin Change Summary

For the most current 3M Technical Information available to successfully use this product, please view this Bulletin electronically and click on the blue underlined links to view the relevant documents. This Bulletin has been substantially changed to remove warranty information and replace it with references to the new Graphics Warranties website. Please read the entire Bulletin thoroughly.

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