

Transportation Safety Division

# 3M™ Premium Protective Overlay Film Series 1160i

Product Bulletin Series 1160i  
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Initial Issue

## 1 Description

3M™ Premium Protective Overlay Film Series 1160i (“**Film**”) is a premium, transparent, UV-protective, graffiti-resistant overlay film that has been designed for use with 3M retroreflective sheetings, as part of 3M’s system of matched components.

The Film fulfills the clear overlay requirement of the 3M™ MCS™ Warranty for Traffic and 3M™ MCS™ Warranty. See the [3M Sign Warranty Bulletin](#) and imaging method specific warranty matrix listed at the end of this document for matched component requirements and warranty details.

The Film is compatible with the following 3M reflective sheetings:

- 3M Engineer Grade Series 3290
- 3M Engineer Grade Prismatic Series 3430
- 3M High Intensity Prismatic Series 3930
- 3M High Intensity Prismatic Digital Sheeting Series 3930DS
- 3M Diamond Grade™ Series 3990
- 3M Diamond Grade DG<sup>3</sup> Series 4000
- 3M Diamond Grade Translucent DG<sup>3</sup> Reflective Sheeting 4090T
- 3M Diamond Grade DG<sup>3</sup> Prismatic Digital Sheeting Series 4090DS
- 3M™ Advanced Flexible Engineer Grade Reflective Sheeting Series 7300

Many types of defacement can be cleaned from the Film to substantially restore the function and appearance of a sign.

Two Film configurations are available:

**1160i:** with premask

**1160iA:** without premask

**Important:** 3M application instructions for the Film are listed in Section 10 of this document. A complete understanding of all applicable instructions is highly recommended as they will help ensure quality Film applications. In addition, strict adherence to all applicable 3M procedures is required to receive a 3M™ MCS™ Warranty. Please Contact your 3M Application Engineer with any questions.

## 2 Properties

The Film is UV-protective, includes a fluoropolymer film top layer, physically protects a sign's imaged sheeting, and resists staining from common graffiti media including paints, permanent marker ink, lipstick, eggs, and stickers.

### 2.1 UV Protection

The Film absorbs light in the UV spectrum. Applying the Film to a sign that has been fabricated using 3M's system of matched components helps protect the underlying sign sheeting, and any copy or images printed on the sheeting, from degradation due to sunlight exposure. This helps maintain the legibility and retroreflectivity of signs exposed to sunlight.

### 2.2 Color and Transparency

The Film is clear and colorless. Applying the Film to a sign that has been fabricated using 3M's system of matched components will help maintain color fastness of printed colors and help preserve the initial and retained minimum retroreflectivity performance of the sign's base sheeting.

When Film is applied according to 3M recommendations to a compatible microprismatic 3M retroreflective sheeting, as listed in Section 1, the Film will conform the performance claims described in the sheeting's product bulletin.

### 2.3 Graffiti Resistance

The Film provides a durable surface from which many types of graffiti can be cleaned using a variety of common techniques to substantially restore the original appearance and function of a vandalized sign.

### 2.4 Adhesive and Liner

The Film utilizes a clear, transparent, pressure sensitive adhesive and has an easily removable white paper liner.

### 2.5 Premask

To facilitate handling, 1160i Film is provided with a white paper premask which is peeled away after application. After removing the premask, re-roll the sign through the laminator to ensure good adhesion. 1160iA does not include premask.

## 3 Application

### 3.1 Use Conditions Before Overlaying Film

- 1 Air and substrate temperatures must be 60 °F (16 °C) or higher.
- 2 Sign must be clean and any screen printed inks present must be completely dry.

### 3.2 Equipment

- 1 Mechanical squeeze roll applicator – See [3M Information Folder 1.4](#).
- 2 Mechanical squeeze roll applicator with heated roller (required for UV-printed signs) – See [3M Information Folder 1.4](#).
- 3 Hand squeeze roll applicator – See [3M Information Folder 1.6](#).
- 4 Flat bed applicator - See [3M Information Folder 1.6](#).

A laminating roller with a hardness of 35 durometer (Shore A) should be used to help minimize tenting of the Film over direct apply copy or 3M™ ElectroCut™ Film Series 1170.

**Note:** Application of 1160iA Film is best accomplished using a mechanical squeeze roll applicator. Use extra care when handling 1160iA since it is not supported by premask.

### 3.3 Premasked Film (1160i)

Remove the premask AFTER the Film has been applied to the sign by lifting an edge of the premask with a fingernail or knife, then pulling the premask back over itself at a very sharp angle using steady, even tension.

**Note:** Edge trim BEFORE removing premask.

#### WARNINGS:

- Do not allow premask to be exposed to moisture.
- Premask must be removed before storing or shipping signs.

### 3.4 Trimming

- 1 Use a sharp cutting blade to trim the Film along sign edges. It may be helpful to grasp the edge of the unsupported overhanging Film to create tension on that portion of the Film while trimming.
- 2 The overhanging portion of the Film on the top edge of the sign may be smoothly folded over and adhered to the back edge of the sign to help reduce water or dirt intrusion along the top edge of the sign. The back side of the sign must be properly cleaned before the Film is applied.

### 3.5 Additional Processing

Do not apply any inks, films, or sheetings as copy or images over the Film. The Film has been designed to resist adhesion of such markings.

### 3.6 Splices

Apply Film to sign as a single piece. Do not overlap splice Film.

## 4 General Surface Testing

The Film, when used according to all applicable 3M procedures, can be expected to provide the same effective field performance as the sheeting to which it is applied. Refer to the relevant 3M product bulletins for performance specifications. The Film has been designed to enhance the cleanability of sign faces of many common types of defacement, including the occasional removal of the following markings:

- Common household spray paints
- Lipstick
- Permanent pen
- Eggs
- Promotional stickers

The Film allows signs to be cleaned such that the function and appearance of the original signs are substantially restored when recommended or conventional cleaners are used. The Film does not prevent defacement.

The use of sharp implements, abrasive devices, or certain types of strong or corrosive chemicals to either deface or clean a sign can result in permanent damage to the Film and the underlying sign, severely reducing the sign's performance. The Film is not intended to protect signs from impact, cutting, gouging, strong chemicals, or pulling of the Film from signs. Use of a flame, other high-heat source, or other extreme abuse of the Film or signs is likely to severely and permanently reduce or destroy the sign's effectiveness.

## 5 Packaging and Storage

Store film in a cool, dry area, preferably at a temperature of 65–75 °F (18–24 °C) and a relative humidity of 30–50%. Signs and sign faces that have been covered with Film do not require slipsheeting. Follow recommendations given in [3M Information Folder 1.11](#) regarding proper storage, packaging, handling, shipping, and installation.

Use within one year of date of receipt.

## 6 Cleaning

### 6.1 Materials

To remove normal dirt accumulation from Film, use a soft cloth with a mild detergent and water solution, followed by a thorough water rinse.

To remove more stubborn contamination, such as graffiti, use commercially available cleaning systems recommended for this purpose. **Before using any cleaning tools or compounds, read and carefully follow all applicable product use and safety instructions. Test the cleaner on a small and inconspicuous area of the sign to determine the cleaner's suitability and whether it will damage or affect the performance of the sign.** Do not use cleaners containing strong polar solvents, such as ketones (acetone, methyl ethyl ketone), methylene chloride (dichloro methane), or other chlorinated solvents.

3M™ Citrus Cleaner can be used to effectively remove many common types of defacement, such as permanent marker, eggs, and stickers. Isopropyl alcohol (IPA), or a 50/50 blend of IPA and xylene, can effectively remove many paints. Commercially available cleaners can also be highly effective. Although the Film is resistant to strong solvents, prolonged exposure to solvents can result in permanent sign damage.

A pressure sensitive tape, such as 3M SCPM-3 or common masking tape, can sometimes be used to effectively remove some kinds of paints and stickers. Simply roll or squeegee the tape firmly over the defaced area, then carefully lift away the tape, and any defacement materials stuck to it, from the overlay. A small amount of residual defacement material may remain and require the use of a cleaning solution, as described above, to remove remnants the tape method did not remove adequately. The sign must be completely dry for this method to be effective.

Always use soft cleaning cloths. Do not use abrasive brushes, scouring pads, or implements to scrape defacement materials from a sign. Scraping and abrasive methods are likely to cause permanent sign damage.

## 7 Health and Safety Information

Read all health hazard, precautionary, and first aid statements found in the Safety Data Sheets (“SDS”), Article Information Sheets, and products labels of any materials for important health, safety, and environmental information prior to handling or use. For any cleaning and/or chemical products, consult federal, state and local air quality regulations that may regulate chemical product usages or restrict use. To obtain SDSs and Article Information Sheets for 3M products, go to [3M.com/SDS](http://3M.com/SDS), contact 3M by mail, or for urgent requests call 1-800-364-3577.

## 8 Warranty Information

### 8.1 3M Standard Warranty

The Film is warranted (“**3M Standard Warranty**”) to be free of defects in materials and manufacture at the time of shipment and to meet the description stated in this product bulletin. If the Film is proven not to have met the 3M Standard Warranty on their shipment date, then a buyer's exclusive remedy, and 3M's sole obligation, at 3M's option, will be refund or replacement of the Film.

### 8.2 3M MCS™ Warranty, MCS Warranty for Traffic, and Limited Remedy

For the MCS Warranty, MCS Warranty for Traffic, and limited remedies applicable to the Film, refer to the [3M Digitally-Imaged Sign Warranty Bulletin](#).

### 8.3 Disclaimer

THE 3M WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING OR OF PERFORMANCE, CUSTOM, OR USAGE OF TRADE.

## 8.4 Limitation of Liability

Except for the limited remedy stated above, and except where prohibited by law, 3M will not be liable for any loss or damage arising from the Film or any 3M product, whether direct, indirect, special, incidental, or consequential damages (including but not limited to lost profits, business, or revenue in any way), regardless of the legal theory asserted including warranty, contract, negligence, or strict liability.

## 9 Other Product Information

Always confirm that you have the most current version of the applicable product bulletin, information folder, or other product information from 3M's Website at <http://www.3M.com/roadsafety>.

## 10 Literature References

<a href="#">3M IF 1.4</a>	Instructions for Interstate Squeeze Roll Applicator
<a href="#">3M IF 1.5</a>	Hand Application Instructions
<a href="#">3M IF 1.6</a>	Hand Squeeze Roll Applicator
<a href="#">3M IF 1.11</a>	Sign Maintenance Management
<a href="#">3M PB 3290</a>	3M Engineer Grade Series 3290
<a href="#">3M PB 3430</a>	3M Engineer Grade Prismatic Series 3430
<a href="#">3M PB 3430DS</a>	3M High Intensity Prismatic Digital Sheeting Series 3930DS
<a href="#">3M PB 3930</a>	3M High Intensity Prismatic Series 3930
<a href="#">3M PB 3990</a>	3M Diamond Grade™ Series 3990
<a href="#">3M PB 4000</a>	3M Diamond Grade DG <sup>3</sup> Series 4000
<a href="#">3M PB 4090DS</a>	3M Diamond Grade DG <sup>3</sup> Prismatic Digital Sheeting Series 4090DS
<a href="#">3M PB 4090T</a>	3M Diamond Grade Translucent DG <sup>3</sup> Reflective Sheeting 4090T
<a href="#">3M PB 7300</a>	3M™ Advanced Flexible Engineer Grade Reflective Sheeting Series 7300
<a href="#">3M Sign Warranty Bulletin</a>	
<a href="#">3M™ MCS™ Warranty Selector</a>	
<a href="#">3M™ MCS™ Warranty Matrix for Durst 163TS and 163TS-HS Printers</a>	
<a href="#">3M™ MCS™ Warranty Matrix for Traffic Matrix for Durst 163TS and 163TS-HS Printers</a>	
<a href="#">3M™ MCS™ Warranty Matrix for EFI™ H1625-RS Printers</a>	
<a href="#">3M™ MCS™ Warranty for Traffic Matrix for EFI™ 1625-RS Printers</a>	
<a href="#">3M™ MCS™ Warranty Matrix for HP Latex 360/365 Printers</a>	
<a href="#">3M™ MCS™ Warranty for Traffic Matrix for HP Latex 360/365 Printers</a>	
<a href="#">3M™ MCS™ Warranty Matrix for HP Latex 700/800 Series Printers</a>	
<a href="#">3M™ MCS™ Warranty for Traffic Matrix for HP Latex 700/800 Series Printers</a>	
<a href="#">3M™ MCS™ Warranty Matrix for HP Latex 1500 Printer</a>	
<a href="#">3M™ MCS™ Warranty for Traffic Matrix for HP Latex 1500 Printer</a>	

## For Information or Assistance

Call: 1-800-553-1380

In Canada Call:

1-800-3M HELPS (1-800-364-3577)

## Internet:

<http://www.3M.com/roadsafety>

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