3M™ Controltac™ Graphic Film with Comply™ v3; IJ180Cv3-10, Series 180Cv2, Series 180C; IJ180C-10 &
3M™ Controltac™ Graphic Film Series 180; IJ180-10

Product Bulletin

Product Description

Controltac Graphic Films Series 180 offer great versatility making them perfect for indoor and outdoor signs and fleet graphics.

3M™ Controltac™ Adhesive minimises the initial contact area of the adhesive and allows the applicator to reposition the film during application; allowing for easier installation of large format graphics in a wide temperature range.

Product variants with 3M™ Comply™ adhesive also have air release channels for fast and easy, bubble-free graphic installations.

Product Line

Screen printing

180-X
X = colour code (Link to colour range: 3M™ Premium Films Colour Range), opaque, gloss, permanent adhesive. A wide selection of colours with custom colour matching available on request

180C-X
X = colour code (Link to colour range: 3M™ Premium Films Colour Range), opaque, gloss, permanent adhesive with Comply™. A wide selection of colours with custom colour matching available on request

180Cv2-X
X = colour code (Link to colour range: 3M™ Premium Films Colour Range), opaque, gloss, permanent adhesive with Comply v2. A wide selection of colours with custom colour matching available on request.

Inkjet printing

IJ180-10
white, opaque, gloss, permanent adhesive (grey).

IJ180C-10
white, opaque, gloss, permanent adhesive (grey) with Comply™.

IJ180Cv3-10
white, opaque, gloss, permanent adhesive (grey) with Comply v3.

Product Characteristics

Physical & Application

Material: cast vinyl
Surface finish: gloss
Thickness (film): 50 µm (0.05 mm)
Adhesive type: solvent acrylic, pressure-sensitive, repositionable.

In addition, product variants with Comply adhesive have air release channels

Adhesive appearance: grey, except for few light colours, metallic and transparent versions, see colour explanation: 3M™ Premium Films Colour Range

Liner: double-sided Polyethylene coated paper

Adhesion: approx. 18 N/25 mm
FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH

Application method: dry only

These are typical values for unprocessed products. Contact your 3M representative for a custom specification.
Applied shrinkage < 0.1 mm

Application temperature
- +4°C for flat surfaces
- +10°C for curved to corrugated surfaces with and without rivets

Notice! The films can be applied at 4 - 38°C. 3M recommends application at 18 - 22°C for optimum ease of application.

Service temperature
- -60°C to +107°C

Surface type
- flat to curved, incl. rivets and corrugations

Substrate type
- aluminium, glass, PMMA, PC*, ABS, paint
  *May require drying with heat before use (see Instruction bulletin: Substrate Selection, Preparation and Substrate-specific Application Techniques)

Graphic removal
- Removable with heat from supported substrates within the warranty period at 10°C (50°F) minimum (air and substrate).
- Use a removal angle of <90° for optimal results. No liability is given for ease or speed of removal of any graphic.

Storage
Shelf life
- The shelf life for unprocessed film is 2 years from the date of manufacture (i.e. the date marked on the original packaging).
- Process within 1 year of manufacture and apply within 1 year of processing.

Storage conditions
- Store in the original container at temperatures of +4°C to +40°C, out of sunlight, in a clean and dry area. Bring the film to room temperature before use.

Flammability
- Flammability standards are different from country to country. Contact your local 3M representative for further details.

Durability
Unprocessed film
- The following durability data are given for unprocessed film only.

3M™ Performance Guarantee and MCS™ Warranty
- In addition, 3M provides a guarantee/warranty on a finished applied graphic within the framework of 3M™ Performance Guarantee and/or 3M™ MCS™ warranty programs.
- Visit www.3M.co.uk/graphicsolutions for details about 3M’s comprehensive graphic solutions.

Climatic zones
- Graphic durability is largely determined by the climate and the angle of exposure. Find below a table showing the durability of a product according to the angle of exposure and the geographical location of the application.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Northern Europe, Italy (north of Rome), Russia</td>
</tr>
<tr>
<td>Zone 2</td>
<td>Mediterranean area without North Africa, South Africa</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Gulf area, Africa</td>
</tr>
</tbody>
</table>

Exposure types
- Vertical: The face of the graphic is ±10° from vertical.
- Non-vertical: The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal.
- Horizontal: The face of the graphic is ±5° from horizontal.
**Interior:** Interior means an application inside a building without direct exposure to sunlight.

<table>
<thead>
<tr>
<th>Vertical outdoor exposure</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>white/black colours</td>
<td>10 years</td>
<td>8 years</td>
<td>6 years</td>
</tr>
<tr>
<td>transparent metallics</td>
<td>8 years</td>
<td>7 years</td>
<td>6 years</td>
</tr>
<tr>
<td>Non-vertical outdoor exposure</td>
<td>Zone 1</td>
<td>Zone 2</td>
<td>Zone 3</td>
</tr>
<tr>
<td>white/black colours</td>
<td>5 years</td>
<td>4 years</td>
<td>3 years</td>
</tr>
<tr>
<td>transparent metallics</td>
<td>4 years</td>
<td>3 years</td>
<td>2 years</td>
</tr>
<tr>
<td>Horizontal outdoor exposure</td>
<td>Zone 1</td>
<td>Zone 2</td>
<td>Zone 3</td>
</tr>
<tr>
<td>white/black colours</td>
<td>2.5 years</td>
<td>2 years</td>
<td>1.5 years</td>
</tr>
</tbody>
</table>
| Graphic removal from graphics subjected to:
- signs or existing graphics that must remain intact.
- Petroleum vapours or spills.
- 3M Commercial Solutions products are not tested against automotive manufacturer specifications!
- To avoid colour variations all pieces of applied film of one coloured area should be processed out of one lot of material.
- Metallic films have a directional characteristic in their appearance. For the best overall results, do not alternate between lengthwise and width-wise graphic panels.
- Film colours can vary slightly from lot to lot. For the most consistent looking wraps, use film from the same roll, or manufacturing lot number on adjoining panels.

Limitations of End Uses:

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

- flexible substrates incl. 3M™ Panographics™ III and 3M™ Envision FS1
- low surface energy substrates or substrates with low surface energy coating.
- other than flat or moderate curved/corrugated surfaces.
- painted or unpainted wallboards, gypsum boards and wallpapers.
- surfaces not clean and more than moderate textured.
- surfaces with poor paint to substrate adhesion.

Important Notice:

- The following films are suitable for horizontal applications: white -10, black -12, tomato red -13, bright orange -14, bright yellow -15, sunflower -25, cardinal red -53, gold metallic -54
- Use film from the same roll, or manufacturing lot number on adjoining panels.
Graphics Manufacturing

When to use an overprint clear or overlaminate

Graphics protection can improve the appearance, performance and durability of printed graphics. Any printed graphic exposed to abrasive conditions (including vehicles), harsh cleaners or chemicals must include graphic protection in order to be warranted.

See instruction bulletin 3M UK Commercial Graphics Overlaminates for further information about selection and use of protective overlaminates and printable clears.

Shipping finished graphics

Flat, or rolled colour-side-out on a 15cm (6 inch) or larger core. This helps prevent the liner from wrinkling or application tape (if used), from popping off.

Converting Information

Inadequately Dry Graphics

Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlaminate lifting, and/or poor graphic performance. The maximum recommended total ink coverage for this film is 270%.

Converting Information

Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty. Build enough time into your process to ensure adequate drying of the graphic.

Poorly dried film becomes soft and stretchy, and the adhesive becomes too aggressive. 3M recommends at least a minimum drying time of 24 hrs before further processing. Dry the graphic unrolled or at least as a loose wound roll standing upright.

Inkjet Printing

Formulations and processing conditions can affect ink durability. Refer to the 3M Product and Instruction Bulletins for your ink for limitations and proper usage. Graphic protection can improve the appearance, performance and durability of your graphic.

Adequately Dry Graphics

Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty. Build enough time into your process to ensure adequate drying of the graphic.

Screen Printing

A clear coat also prevents chalking on unprinted films. Use equipment designed to handle high viscosity materials and make sure the coating is evenly applied to the specifications given in the clear’s Instruction Bulletin.

Abrasions and Loss of Gloss

Abrasions damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear.

See product bulletin Application Tapes for information about selection and use of suitable application tapes for this product.

Refer to Instruction Bulletin 5.1 'Substrate Selection, Preparation and Substrate-specific Application Techniques', for general application information.

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 Storage, Handling, Maintenance and Removal of Films and Sheetings, for general maintenance and cleaning information.

Remarks

This bulletin provides technical information only.

Important notice

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law. Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

Additional Information

Visit the web site of your local subsidiary at www.3M.co.uk/graphicsolutions for more details about 3M™ MCS™ Warranty and 3M™ Performance Guarantee, product overview and additional technical bulletins.
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.