



GRAPHICS MEDIA

PRODUCT DATA SHEET

Product Code: 40C

Issued September 2017

3M™ Controltac™ Print Film

Product Bulletin 40C

Revision D, Effective February 2016 (Replaces C, Apr. '15)

40C-10R
40C-20R
40C-114R

Quick Links

[3M Graphics Warranties](#)
[Technical Information Selector](#)
[Safety Data Sheets \(SDS\)](#)
[Flammability \(ASTM E84 Reports\)](#)
[Videos](#)

Product Description

- For Solvent, Eco-Solvent, UV and Latex Inkjet and Screen Printing
- 3-mil vinyl films

Product Features

- Available in gloss (10R), matte (20R), and transparent luster (114R) finishes
- Includes Comply™ Adhesive for fast, easy bubble-free installations
- Pressure-activated adhesive for easy sliding, tacking, snap up and repositioning
- Removable
- Expected Performance Life (unwarranted period of time)
 - **Most General Signage:** 7 years in a vertical exposure with typical usage.
 - **Indoor Floor Graphics:** 1 year when used in a horizontal indoor exposure with typical usage and protected by [3M™ Scotchcal™ Luster Overlaminate 3645](#)
- **Indoor Floor and Carpet Graphics:** 3 months when used in a horizontal indoor exposure with typical usage and protected by [3M™ Scotchcal™ Luster Overlaminate 8509](#)

Recommended Types of Graphics and End Uses

- General intermediate signage for outdoor and indoor applications
- Interior and exterior building windows and dividers
- Indoor floor and carpet graphics
- Truck graphics on flat or simple curved areas
- Partial vehicle wraps on flat or simple curved areas

IMPORTANT NOTE

Floor and carpet graphics are for use on indoor floors only. They require the use of overlaminate 3645 or 8509, which provides a slip-resistant surface.

When applying graphics to carpet, it is solely the user's responsibility to be aware of and comply with the Americans with Disabilities Act Standards for Accessible Design, which includes, but is not limited to:

302.2 Carpet. Carpet or carpet tile shall be securely attached and shall have a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. Pile height shall be 1/2 in (13 mm) maximum. Exposed edges of carpet shall be fastened to floor surfaces and shall have trim on the entire length of the exposed edge.

3M™ Controltac™ Print Film

CAUTION

Loose or damaged floor or carpet graphics may cause a person to slip or trip and fall. To reduce the risk of slipping or tripping on floor graphics:

- Use only 3M overlaminate 3645 or 8509 which has a slip-resistance surface.
- Properly apply graphics only on hard indoor floors or carpets with a pile as described in ADA Standards for Accessible Design, Section 302.
- Immediately remove or replace loose or damaged graphics. Do not attempt to repair or re-adhere.

Failure to heed this Caution may result in personal injury.

Graphic Protection

Graphic protection can improve the appearance, performance and durability of your graphic. Always use only the graphic protection options recommended in this Bulletin for this film. See [3M Product Bulletin GP-1](#) for more details about these options.

- [3M™ Scotchcal™ Luster Overlaminate 3645](#)
- [3M™ Scotchcal™ Gloss Overlaminate 8508](#)
- [3M™ Scotchcal™ Luster Overlaminate 8509](#)
- [3M™ Scotchcal™ Matte Overlaminate 8510](#)
- [3M™ Scotchcal™ Gloss Overlaminate 8518](#)
- [3M™ Scotchcal™ Luster Overlaminate 8519](#)
- [3M™ Scotchcal™ Matte Overlaminate 8520](#)

Characteristics

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

Physical Characteristics

| Characteristic | 10R | 20R | 114R |
|----------------|--|-------|-------------|
| Material | Vinyl | | |
| Film Color | White, opaque | | Transparent |
| Finish | Gloss | Matte | Luster |
| Thickness | Without adhesive: 3 mil (0.081 mm) With adhesive: 4 mil (0.102 mm) | | |
| Adhesive | Pressure-activated (slide, tack, snap up, reposition) with air release channels | | |
| Adhesive Color | Gray | | Clear |
| Liner | Polyethylene-coated paper | | |
| Flammability | ASTM E84 reports: 40C-10R , 40C-20R , and 40C-114R or go to the On-line Product Catalog at 3M.com/graphics All other test reports: call 1-800-328-3908 | | |

3M™ Controltac™ Print Film

Application Characteristics

| Characteristic | Value |
|--|--|
| Finished Graphic Application Recommendation | Surface type: - Most Graphics: Smooth, flat with or without rivets (expect tenting); simple curves - Indoor Floor Graphics Only: Flat and smooth (no surface texture) Substrate type: - Most Graphics: Painted metal and other painted substrates, rigid plastic, glass - Indoor Floor Graphics Only: Most indoor floors including, tile, sealed concrete, terrazzo, ceramic and finished wood; Low pile, secured floor carpet Application temperature: 40° – 100°F (4.4° – 38°C) air and substrate Application method: Dry |
| Temperature Range After Application | -30 °F to +200 °F (-34 °C to +93 °C) (not for extended periods of time at the extremes) |
| Graphic Removal | Removable, may require heat |



WARNING: Risk of Glass Breakage Due to Thermal Expansion

Glass surfaces exposed to sunlight will absorb heat. A glass surface covered by a film with high opacity or dark-colored ink, including films with small areas of high opacity or dark-colored ink, will absorb more heat. Heat absorption can create thermal stress that results in glass breakage, or thermal cracking. This can cause personal injury and property damage. 3M specifically does not recommend using a film with high opacity or dark-colored ink on glass surfaces with significant exposure to sunlight.

Warranty Information

Warranty Coverage Overview

The warranty coverage for eligible graphics is based on the user both reading and following all applicable and current 3M Graphics Product and Instruction Bulletins. The warranty period for eligible graphics is as stated in the 3M Graphics Warranties Matrices at the time that the film was purchased. Information found at 3Mgraphics.com/warranties includes:

- [3M Graphics Warranties Bulletin](#)
 - This bulletin contains information on limitations and exceptions, and warranty period reductions for 3M Graphics Warranties. The warranty period may be reduced and stipulations may apply for certain constructions and applications, and graphic exposures as covered in this Bulletin.
- [3M Graphics Warranties Selector](#)
 - Use this selector to search for your vertical warranty period by product number, ink type, and ink/prINTER platform.
- [U.S. Desert Southwest Region Map](#)
 - Use this map of hot, arid desert areas to determine if you are subject to reduced warranted durabilities.

The warranties set forth in this 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](#).

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3M™ Controltac™ Print Film

Limited Remedy

The limited remedy applicable to each warranty is addressed in the 3M Graphics Warranties Bulletin found at 3MGraphics.com/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.

Additional Limitations

See the 3M Graphics Warranties Bulletin at 3MGraphics.com/warranties, for terms, additional limitations of your warranty, if any, information on reduced warranties for different exposures, 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.

- **Sheeted film:** When used on a flat-bed inkjet printer, sheeted film may produce printing defects.
- **Ink limiting:** The recommended maximum ink limit is 250%.
- **If sheeted or stacked graphics will be stored:** If you plan to store sheeted and stacked finished graphics for an extended period of times, leave an unprinted margin (about 1/4 inch) to allow for possible shrinkage before trimming the graphic.

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.

3M™ Controltac™ Print Film

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.

Screen Printing

Formulations and processing conditions can affect ink durability. Refer to the Product and Instruction Bulletins for your ink for limitations and proper usage.

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 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 5.1](#). Select and Prepare Substrates for Graphic Application
- [3M Instruction Bulletin 5.19](#). Lamination, Application and Maintenance of Floor Graphics
- [3M Instruction Bulletin 5.36](#). Application Techniques for Automobiles, Vans and Buses. Complete the 3M Pre-Installation Inspection Record found in this Instruction Bulletin prior to manufacturing or applying a graphic to an automobile, van, or bus.
- [3M Instruction Bulletin 5.4](#). Application, Fleet Trucks.
- [3M Instruction Bulletin 5.5](#). Application, General Procedures for Interior and Exterior Dry Application.
- [3M Instruction Bulletin 6.5](#). Storage, Handling, Maintenance, and Removal of Films and Sheetings.
- [3M Product and Instruction Bulletin V-Tools](#). 3M™ Vehicle Channel Applicator Tools.

IMPORTANT NOTE

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.

IMPORTANT NOTE

3M recommends using additional heat in the post-application process for vehicle graphics. During this process, 3M only recommends using a heat gun to make sure the film surface temperature reaches a minimum of 200° F (93° C) and does not exceed 225° F (107° C).

3M™ Controllac™ Print Film

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.

Working with Air Release Channels

Air release channels are a characteristic of films with Comply™ adhesive that allow trapped air to exit through the edges of the graphic.

- The channels will be damaged and effective air removal affected if you remove and attempt to change liners or reapply the same liner.
- For the best results, always work from the center out to the edges of the graphic to allow trapped air to exit through the air release channels. If the channels are closed off by firm pressure and air is trapped, use an air release tool to aid in removing air bubbles. See [3M Instruction Bulletin 5.4](#) for details.

Video

Click [here](#) to see how 3M's Comply™ adhesive technology works.

Working with 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.
- For the best appearance and durability, 3M recommends cutting around the rivet, removing the circle of film, and then re-squeegeeing around the rivet

3M™ Controltac™ Print Film

Film Lifting and Tenting

Film 40C is an excellent choice for graphics applied to flat and simple curved surfaces, and even rivets if tenting is not a concern. 3M feels it is important for you to understand the challenges of using this film on complex surfaces to ensure both you and your customer are satisfied with the results.

IMPORTANT NOTE

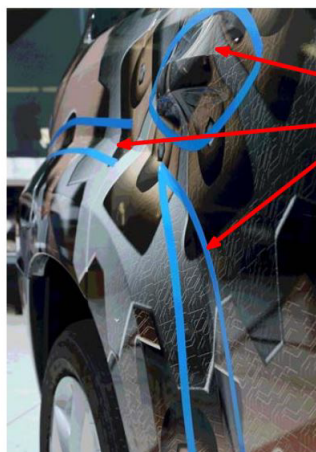
Film 40C is not highly conformable, meaning it has a memory for its original shape. It is not a good choice for complex curves, deep channels, severe contours, or corrugations. Even with the use of primer, heat, tools and advanced installation skills, the film is likely to lift or tent, either during the application or within hours or days of the application.

The following photos show the risk of applying film 40C to complex surfaces.

Film 40C is not recommended for corrugations. Lifting from corrugations and tenting over rivets.



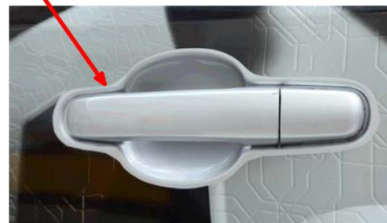
Tenting over rivets even on relatively flat surfaces.



Tenting over door handle

Lifting in deep contours

For good results on flat or simple curved vehicle surfaces with doors, cut film out around door handle.





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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 may require heat. 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 2 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 2 year maximum from the manufacturing date.

Storage Conditions

- 90 °F (32 °C) maximum
- 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 liner, 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

Rev D: Added 40C-114R and related information to the bulletin.

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