



Controltac™ Graphic Film

162-10 and 162-114

For Screen Printing and Offset Printing Only

1. Product Description

A. Product Features

- 4-mil white opaque or clear vinyl film
- Slideable and repositionable
- Excellent hiding power (white film)
- Easily removable
- Outstanding resistance to dirt and other environmental factors and wear from high foot traffic when protected by the recommended overlamine

B. Recommended Types of Graphics and End Uses

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.

- Floor graphics on most indoor hard surface flooring

C. Performance Overview

3M tests the performance of both individual products and finished graphic constructions. This table shows the best performance expected from this product both without a Warranty Period and with a Warranty Period.

For detailed graphic construction and application options along with specific Warranty Periods, please see the Warranty Information, Section 5.

Note: The values below are for comparison only. A slip-resistant overlamine is required for all 3M Floor Graphics, whether or not they have a warranted period of time.

Expected Performance Life. This is the estimated period of time the product should perform satisfactorily.	
3M does not approve the use of this product without an overlamine and does not suggest an expected performance life	
3M™ MCS™ Warranty. This is the maximum period of time 3M will warrant the finished graphic performance.	
Printed film with the best 3M ink and graphic protection option, applied to an indoor hard surface floor.	1 year Warranty Period

D. Limitations of End Uses

This 3M product is not designed or recommended for the following uses. Please contact us to discuss other options.

- Graphics that are not protected by the recommended overlamine
- Application to loose, broken or unsound flooring material
- Application to playing surfaces such as gymnasium floors
- Graphics used for purposes other than for indoor floors
- Graphics applied to substrates other than those recommended
- Graphics made of individually laminated cut numbers, letters and characters
- Damage due to pallets or heavy equipment such as fork-lifts over the graphics; minor edge chipping is unavoidable. Such damage is not warranted.

 **CAUTION**

Any floor surface, including those with floor graphics, that is wet due to rain, snow, or other contaminants may become slippery. To avoid personal injury due to slipping:

- Place the floor graphic far enough away from entryways that they stay dry.
- Use doormats to reduce moisture at entryways.
- Clean up water, spills, or other contaminants immediately.

 **WARNING**

The safety and performance of 3M-recommended film/overlaminates when used as a floor graphic is recommended or warranted only on the substrates listed in Characteristics. Any other surface must be approved in writing by 3M Commercial Graphics Technical Service prior to application.

FLOOR GRAPHICS ARE FOR INDOOR USE ONLY.

2. Compatible Products

This Bulletin provides details about the base film and its compatible products and warranted graphic constructions. Additional information about 3M's compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this Bulletin.

A. Screen Printing

- 3M™ Screen Printing Ink Series 1900
- 3M™ Screen Printing UV Ink Series 9800
- Offset inks of graphic manufacturer's choice

B. Graphic Protection

- 3M™ Scotchcal™ Luster Overlaminates 3645
- 3M™ Scotchcal™ High Gloss Overlaminates 3648

3. Characteristics

These are typical values for unprocessed product; processing may change the values. Contact your 3M representative for a custom specification.

A. Physical Characteristics

Characteristic	Value
Film	Non-cast vinyl
Film color	Film color -10: white, opaque Film color -114: clear
Gloss	Matte
Thickness <i>nominal</i>	Without adhesive: 4 mil (0.10 mm) With adhesive: 4.5 – 5 mil (0.11 – 0.13 mm)
Adhesive	Pressure activated, snap-up, slide, reposition
Adhesive color	Film color -10: gray pigmented Film color -114: clear
Liner	Polyethylene-coated paper
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water (<i>does not include immersion</i>)
Flammability	Call 1-800-328-3908 for information.

B. Application Characteristics

Characteristic	Value
Finished graphic application recommendation	<p>Surface type: Flat, without rivets</p> <p>Substrate type: Most indoor floors, including sealed concrete, marble, terrazzo, ceramic, finished wood</p> <p>Application temperature: 50° – 100°F (4° – 38°C)</p> <p>Application method: Dry</p>
Applied shrinkage	0.032 inch (0.8 mm)
Temperature range after application	-10° – +200°F (-34° – +93°C)
Graphic removal	Removable without heat or chemicals, with little or no residue

4. Definitions

A. Exposure Types

U.S. Horizontal Exposure



The face of the graphic is +/- 5° from horizontal.

B. Graphic Types

Indoor Signs

Stationary graphics applied indoors and *not* exposed to the elements.

C. Graphic Construction

The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape.

D. Graphic Protection

Overlamine films or clear coats used to protect the graphic and/or change gloss. Selected overlamine films may also provide slip resistance.

5. Warranty Information

A. Warranty Coverage Overview

The warranty coverage for each graphic is based on the user(s) both reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranty Period stated in the base film's Product Bulletin that is current when the film was purchased. The Warranty Period may be reduced and stipulations may apply for certain constructions and applications, as covered in this Bulletin.

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.

B. 3M Basic Product Warranty

This product is 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 and as further set forth in the [3M Graphics Warranties Brochure](#).

C. Limited Remedy

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.

D. 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 ABOVE), 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 SELLER'S 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 including breach of contract, breach of warranty, negligence, strict liability, or any other legal or equitable theory.

E. Additional Limitations

See the [3M Graphics Warranties Brochure](#) at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

F. Performance Expectations for Floor Graphics

When constructed as indicated in the following table and in accordance with 3M's written instructions, floor graphics will for the Warranty Period have the following expected performance: maintain original brightness, color, and image quality, excepting ordinary and expected wear and tear, and adhere to 3M-recommended floor surfaces and be removable without damage to the surface.

G. 3M™ MCS™ Warranty

Subject to Stipulations set forth in Section H., below

Finished graphics constructed with the materials specified and the exposure specified in the Warranted Durability Table, below, is eligible for the 3M™ MCS™ Warranty.

<i>Warranty Period</i>			
Ink Series	Film	Graphic Protection	Indoor Floor Graphics
9800	162-10	3645	12 months
1900	162-114	3648	3 months

H. General Warranty Stipulations for 3M™ MCS™ Warranty

These stipulations apply to the 3M™ MCS™ Warranty. General provisions for these stipulations are covered in the [3M Commercial Graphics Warranty Brochure](#).

(1) Application Outside the U.S.

Contact the 3M organization for that country.

(2) Graphics Made with Components Not Sold or Recommended by 3M

The 3M™ MCS™ Warranty does not, under any circumstances, cover graphics made with inks, film, graphic protection and/or application tapes that are not sold or recommended by 3M.

The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include any non recommended or qualified products.

(3) Graphic Protection

The specified slip-resistant overlaminates is required for warranted graphics and must be cold roll applied.

Do not use a clear coat on the film when it is used as a floor graphic.

6. Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by all of the following.

- Correct combination of 3M-recommended graphics products
- Ink formulation
- Complete ink drying and/or UV curing
- Selection and preparation of the floor
- Condition and texture of floor
- Application methods
- Exposure and environmental conditions
- Cleaning or maintenance methods
- Damage from excessive abuse

7. 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.

8. Offset Printing

This film can be offset printed. Contact Commercial Graphics Technical Service, 1-800-328-3908, if you have questions.

9. Graphics Manufacturing

Refer to the 3M Related Literature section for a list of the Product and Instruction Bulletins that may be needed to make a graphic.

10. Cutting

The following are common cutting methods for this film. See [Instruction Bulletin 4.1](#) for details.

- | | |
|--------------------------------|---------------------------------------|
| • Bandsawing | • Flat-bed electronic cutting |
| • Hot kiss cutting | • Guillotine |
| • Hot and cold steel rule | • Hand cut |
| • Drum-type electronic cutting | • Cold and hot steel-rule die cutting |

11. Application and Installation

Install the film using the dry application method. See [Instruction Bulletin 5.19](#).

Refer to the 3M Related Literature section, located at the end of this Bulletin, for a list of the Instruction Bulletins that may be needed to apply or install this film.

A. 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
- Snap up and repositionability is lost when:
 - firm pressure with a squeegee or other application tool is applied. This ensures a good adhesive bond while completing the installation.
 - 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.

B. Application Tape

A premasking or prespacing tape is not required or recommended.

C. Installation Tip

Always work from the center out to the edges of the graphic to minimize trapped air.

12. 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.)

13. Removal

The film is removable without heat or chemicals within the warranty period. See [Instruction Bulletin 5.19](#).

14. Shelf Life, Storage and Shipping

A. Shelf Life

Total shelf life: 3 years from the date of manufacture on the original box. If you do process the film, do so within 2 years and apply within 1 year. If you do not process the film, apply it within 3 years.

B. 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

C. 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.

15. 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™ Screen Printing Ink Series 1900 and Overprint Clear V10402 - Screen printing with ink series 1900 - line color - 4-color	PB	1900
	IB	3.12
	IB	3.11
3M™ Screen Printing UV Ink Series 9800 - Screen printing with UV ink series 9800 - line color - 4-color	PB	9800
	IB	3.20
	IB	3.21
3M Graphic Protection Products <i>overview of all graphic protection products</i> - Hot and Cold Roll Lamination	PB	GP-1
	IB	4.22
Scoring and Cutting	IB	4.1
Lamination, Application & Maintenance of Floor Graphics	IB	5.19
Storage, Handling, Maintenance, Removal	IB	6.5
3M Commercial Graphics Warranty Brochure		

16. Bulletin Change Summary

Modified and new content is marked with a black bar in the margin. CORRECTIONS: The Warranty Period for film 162 with overlamine 3648 is 3 months, not 1 year, as stated in Release M of this Product Bulletin and the film is non-cast vinyl



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