Controltac™ Graphic Film
162-10 and 162-114

For Screen Printing and Offset Printing Only

Product Description

These are 4-mil, slideable and repositionable films designed for making short-term, easily removable, indoor floor graphics that meet certain NFPA requirements. The films are available in opaque white, which has excellent hiding power, or clear. They have outstanding resistance to dirt and other environmental factors and wear from high foot traffic when protected by the recommended overlaminate. The films can be screen printed and offset printed.

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. Please read the entire Bulletin for details.

- Graphics on most indoor hard surface flooring

Limitations of End Uses

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

- Graphics that are not protected by the recommended overlaminate
- 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/overlaminate 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.

Compatible Products

3M Graphic Materials

This Bulletin provides details about the base film and construction options and warranty. Additional specific information about compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this bulletin.

Screen Printing

- 3M™ Screen Printing Ink Series 1900
- 3M™ Screen Printing UV Ink Series 9800

Graphic Protection

- 3M™ Scotchcal™ Luster Overlaminate 3645

Characteristics

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

Physical Characteristics

Characteristic	Value
Film	Vinyl
Film color	**Film color -10:** white, opaque **Film color -114:** clear
Gloss	Matte
Thickness *nominal*	**Without adhesive:** 4 mil (0.10 mm) **With adhesive:** 4.5-5 mil (0.11-0.13 mm)
Adhesive	Pressure activated, positionable
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 *(this does not include immersion)*
Flammability **Building Indoor Wall/Ceiling Applications**	The 3M-recommended film/overlaminate meets the requirements of the National Fire Protection Association Class AI as defined in NFPA 101 "Life Safety Code" Test Method. • Test Method: ASTM E84 • Flame Spread Index = 0 • Smoke Developed Index = 85
Building Indoor Floors/Walkways	The 3M-recommended film/overlaminate meets the requirements of Class A1 Interior Floor Finish, as defined in NFPA 101, Life Safety Code, tested to E648. Overlaminate 3645 meets the specified requirements of UL410 - Standard for Slip Resistance of Floor Surface Materials.

Application Characteristics

Characteristic	Value
Finished graphic application recommendation	**Surface type:** Flat, without rivets **Substrate type:** Most indoor floors, including sealed concrete, marble, terrazzo, ceramic, finished wood **Application temperature:** 40° to 100°F (4° to 38°C) **Application method:** Dry
Applied shrinkage	0.032 inch (0.8 mm)
Temperature range after application	-10° to +200°F (-34° to +93°C)
Graphic removal	Removable without heat or chemicals, with little or no residue

Warranty Information

The warranty given in the Product Bulletin that is current at the time you purchased the film is the one that 3M will honor. Also see, *Warranty Stipulations,* on page 4.

3M™ MCS™ Warranty
for Finished Graphics

Ink Series	Film	Graphic Protection	Indoor Durability *in years*
9800 1900	162-10 162-114	3645	1

Performance Expectations
for Floor Graphics with a
3M™ MCS™ Warranty only

When constructed as indicated in the above table and in accordance with 3M's written instructions, floor graphics will for the warranted durability 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.

Warranty Stipulations

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
- Adequate 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

Application Outside the U.S.

Contact the 3M organization for that country.

Graphics Made with Components Not Sold or Recommended by 3M

The 3M™ MCS™ Warranty does not cover finished graphics made with other manufacturers' inks, film, graphic protection and/or application tapes. The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include non-3M graphic products.

Application to Glass

3M accepts no liability for glass breakage when using this film for window graphics. See Instruction Bulletin 5.1 for details.

Graphic Protection

Overlaminate 3645 is required for warranted graphics and must be cold roll applied.

Do not use a clear coat on film series 162 when used as a floor graphic.

Warranty and Limited Remedy

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: all 3M products are 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. 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. **In no case shall 3M be liable for any direct, indirect, or consequential damages, including any labor or non-3M materials charges.**

See the Graphics Market Center Warranty Brochure, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

Printer and Printer Accessory Disclaimer

With the exception of 3M branded products, 3M does not represent that any printer or printer accessory recommended in 3M literature will meet customer requirements, any federal, state or local regulations or any applicable safety standards. Such determination is the responsibility of the printer owner.

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.

Offset Printing

Film series 162 can be offset printed. Contact Commercial Graphics Technical Service, 1-800-328-3908, if you have questions.

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.

Cutting

The following are common cutting methods for this film. See Instruction Bulletin 4.1 for details.

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

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.

Adhesive

This film has a pressure-activated adhesive that allows the film to slide easily on the substrate, be positioned with light finger pressure, and repositioned if it is not in the right place. However, by design so that a good adhesive bond is established, the positionability 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, and if any part of the film is removed from the original liner and reapplied to the same or another liner.

Always work from the center out to the edges of the graphic to minimize trapped air. Use an air release tool to aid in removing air bubbles. See Instruction Bulletin 5.4 for details.

Application Tape

This film does not require a premasking or prespacing tape for application.

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.)

Removal

See Instruction Bulletin 5.19.

Shelf Life, Storage and Shipping

Shelf Life

Total shelf life: 2 years from the date on the original box
Up to 2 years unprocessed, *OR* process within 1 year *and* apply within 1 year of processing

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 5 inch (13 cm) or larger core. This helps prevent the application tape, if used, from popping off.

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 VI0402	PB	1900
- Screen printing with ink series 1900 - line color	IB	3.12
- 4-color	IB	3.11
3M™ Screen Printing UV Ink Series 9800	PB	9800
- Screen printing with UV ink series 9800 - line color	IB	3.20
- 4-color	IB	3.21
3M™ Scotchcal™ Luster Overlaminate 3645	PB	3645
Cold roll lamination	IB	4.22
Scoring and cutting	IB	4.1
Floor graphics	IB	5.19
Storage, handling, maintenance, removal	IB	6.5
3M Graphics Center Warranty Brochure go to www.3Mgraphics.com, Warranties		

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Bulletin Change Summary

General update to new format.