

Commercial Solutions Division

3M™ Panagraphics™ III

Wide Width Flexible Substrate

Product Description

3M™ Panagraphics™ III is a flexible substrate for illuminated signage.

Product Line	Illuminated signage	Panagraphics™ III	white, translucent, semi-glossy
--------------	---------------------	-------------------	---------------------------------

Product Characteristics

These are indicative values for unprocessed products.
Contact your 3M representative for a custom specification.

Physical & Application

Material	white-pigmented vinyl with a polyester scrim
Surface finish	glossy
Thickness (film)	580 µm (0.58 mm)
Light transmission	21% ± 2%
Weight	650 g/m ²

Tensile strength

- Tear weft	15 kg / cm
- Tear warp	13.4 kg / cm
- Tensile weft	26.6 kg / cm
- Tensile warp	26.6 kg / cm

Maximum finished size	58 m ² per warranted face
Installation temperature	min +7°C
Service temperature	-30°C to +70°C (not for extended periods of time at the extremes)

The values above are the results of illustrative lab test measurements and shall not be considered as a commitment from 3M.

Storage

Shelf life	Use within two years from the date of manufacture on the sealed original box. Use within one year after opening the box. Up to 6 months decorated.
------------	-------------------------------------------------------------------------------------------------------------------------------------------------------

Storage conditions	+4°C to +40°C, out of sunlight, original container in clean and dry area.
--------------------	---------------------------------------------------------------------------

The shelf life as defined above remains an indicative and maximum data, subject to many external and non-controllable factors. It may never be interpreted as warranty.

Flammability

Flammability standards are different from country to country. Ask your local 3M contact for details, please.

Durability

The durabilities mentioned in the table below are the results of illustrative lab tests. The values show the best performance expected from these products, provided that the film will be processed and applied professionally according to 3M's recommendations.

The durability statements do not constitute warranties of quality, life and characteristics.

The durability of products is also influenced by:

- the type of substrate and thorough preparation of the surface (with 3M™ Surface Preparation System)
- application procedures
- environmental factors
- the method and the frequency of cleaning

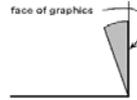
Unprocessed film	The following durability data are given for unprocessed film only!
------------------	--------------------------------------------------------------------

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.

- Zone 1 Northern Europe, Italy (north of Rome), Russia
- Zone 2 Mediterranean area without North Africa, South Africa
- Zone 3 Gulf area, Africa

Exposure types

Vertical:



The face of the graphic is ±10° from vertical.

Interior: Interior means an application inside a building without direct exposure to sunlight.

Vertical outdoor exposure	Zone 1	Zone 2	Zone 3
	6 years	5 years	4 years
Interior application	Zone 1	Zone 2	Zone 3
	10 years	10 years	10 years

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.

For detailed graphic construction and application options along with specific Warranty periods, please see the Warranty matrices and Warranty information on [3M Graphic Solutions/Warranties](#).

Visit www.3mgraphics.com for getting more details about 3M's comprehensive graphic solutions.

Limitations of End Uses

Graphics applied to

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

- removing existing graphics and reusing the substrate
- graphic decoration with more than three layers of flexible substrate (base flexible substrate plus overlaminates)
- using 3M™ Scotchcal™ Overlaminates 3640GPS or 3642GPS for graphic protection
- second surface film decorating

Important Notice

- 3M Commercial Solutions products are not tested against automotive manufacturer specifications!

Graphics Manufacturing

Shipping finished graphics

Rolled film side out on 150 mm (6 inch) or larger core. Do not use masking tape to secure the roll. It may stain the substrate.

Making Graphics with 3M™ Scotchcal™ Translucent Graphic Film 3630 or 3M™ Scotchcal™ Translucent Graphic Film 2330

Applying to Panagraphics™ III substrate, film series 3630 can be screen printed and/or electronically cut and film series 3M™ Scotchcal™ 2330 can only be electronically cut. Apply the film to the substrate using the wet application method or dry/roll lamination for front-lit graphics. No more than two layers of film may be applied to the substrate. The minimum decorating temperature recommended is +15°C. See paragraph Tensioning and Attaching.

Refer to Instruction Bulletin 5.3 'Application of 3M™ Pressure Sensitive Films to 3M™ Panagraphics™ Substrates', for general application information.

> [Instruction Bulletin 5.3 'Application of 3M™ Pressure Sensitive Films to 3M™ Panagraphics™ Substrates'](#) <

Converting Information

Inkjet Printing

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

Adequately Dry Graphics Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under any 3M warranty. Poorly dried film becomes soft and stretchy, and the adhesive becomes too aggressive. Even if your printer has a dryer, it may not adequately dry latex and solvent inks in the short period of time it spends passing through the heater.

Recommendations to improve the drying of solvent inks Dry the graphic unrolled or at least as a loose wound roll standing upright. To further increase air circulation place the spooled film roll on a grid, and place a fan beneath the grid.

If you only spool open the film, adequate drying could still take a week, depending on the environment.

Build enough time into your process to ensure adequate drying of the graphic. 3M recommends at least a minimum drying time of 24 hrs before further processing. Test: Fold a piece of film with maximum ink laydown of the graphic onto itself. Apply 140 g/cm² for 15 minutes, release and check for effects like sticking or dull spots. These are clear indications that further curing or drying is needed.

Notice: Latex inks are different Unlike solvent inks, spooling and letting latex printed graphics sit does not help to cure the ink, but does allow the graphic manufacturer to see if any oily spots are generated which may interfere with proper adhesion of overlaminates.

To ensure proper latex ink drying, use the following recommendations:

Media Presets: HP media presets contain all the needed settings to print on a specific media.

Download and use media presets from the following page: www.hp.com/go/mediasolutionslocator.

Environmental Conditions: HP media presets have been specially designed and tested for each printer-media combination. Recommended environmental conditions: +20°C to +25°C), Humidity 40% - 60% RH

Important notice for HP 831/871 and HP 881/891 The amount of ink printed is the main key for proper overlaminate adhesion. Select a media preset using 100% or less ink density.

Post-processing of latex printed graphics immediately after printing Latex inks should emerge from the printer fully dried. Post-air drying of a wet print will not enable drying, since latex ink drying requires that the dried ink is heated above the film formation temperature of the latex inside the printer.

For immediately post-processing of latex printed graphics follow strictly the recommendations given above (Section: Latex inks are different) and test the proper drying with the following performance tests:

Visual Test: Check the image immediately after printing. The sample should not be wet or sticky to the touch, or have an 'oily' feel when it emerges from the printer.

Rubbing Test: After the visual inspection, wipe the printed sample with a white wet paper towel. Fully-dried ink should resist wiping and should not show any stains on the white cloth. If the ink is easily removed by wet rubbing, then it is not dried.

Stacking Test: In some cases, the top surface will appear dry after printing but within a few minutes ink may migrate to the surface leaving an oily aspect. To ensure proper drying, stack at least 12 sheets liner to printed side and let sit for one hour.

After 1 hour, remove the stack and check for "oily" stains, wet surfaces or glossiness changes on high ink laydown areas on each sheet. If any of these occur, then the ink is not properly dried.

If a sample is not properly dried on the printer, reprint the image under a condition that allows complete drying. Common improvement steps are:

- Increasing the drying temperature in 5 degree steps.
- Increasing the number of passes to slow down printing.
- Reducing the amount of ink printed (media preset with lower ink densities).

Allow the converted graphic to build sufficient bond prior to application/installation Give laminated samples time before applying them. The adhesion bond between the laminate and the printed base film will increase with time. 24 hours minimum for room temperature laminated graphics. 8 hours minimum for graphics laminated with heated rolls (one or two). Lamination temperature: +40°C to +60°C. Lamination speed: maximum 2 meter/minute.

Attaching and Tensioning

3M recommends attaching and tensioning this substrate in a cabinet at a temperature equal to or more than +7°C, whether the work is being done in a fabricator's shop or in the field.

Cold temperature field installation Artificially warm the decorated substrate to at least +7°C before attaching or tensioning the sign face in a cabinet or frame.

Do not stress the decorated substrate by folding, crimping, creasing, or forming it around corners. In cooler temperatures, the films applied to the substrate become less flexible and may crack if handled roughly.

Check and re-tension large sign faces as needed when the temperature warms to more than +15°C.

A large sign face is one that is more than 25 m² and has a height that exceeds 3.3 m or a width that exceeds 7.5 m.

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).

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.

As outdoor graphics age, natural weathering occurs causing a gradual reduction in gloss, slight color changes, some lifting of the graphic at the edges or around rivets, and ultimately a minor amount of cracking.

These changes are not evidence of product failure and are not covered by a 3M warranty.

Additional information

Visit the web site of your local subsidiary at www.3Mgraphics.com for getting:

- more details about 3M™ MCS™ Warranty and 3M™ Performance Guarantee
- additional instruction bulletins
- a complete product overview about materials 3M is offering



Commercial Solutions Division
Hermeslaan 7
1831 Diegem, Belgium

Responsible for this technical bulletin

3M Deutschland GmbH
Carl-Schurz-Str. 1
41453 Neuss, Germany

3M, Panagraphics, Controltac, Envision, Scotchcal, Comply, MCS, and Panagraphics are trademarks of 3M Company. All other trademarks are the property of their respective owners.

The use of trademark signs and brand names in this bulletin is based upon US standards. These standards may vary from country to country outside the USA.