



Panagraphics™ II Intermediate Flexible Substrate

For Electrostatic Imaging, Piezo Ink Jet Printing and Electronically Cut Graphics Only

Description

3M™ Panagraphics™ II Intermediate Flexible Substrate is a translucent media with a smooth front surface and a semi-gloss finish. Digitally image this substrate and attach it to a variety of extrusions, or decorate with cut or screen printed film before or after attaching it to a frame or extrusion. It is a cost-effective choice for medium term, promotional backlit signs and awnings.

Recommended Types of Applications and End Uses

Panagraphics substrate is intended for making durable, flexible signs when used with the listed Compatible Products in the following applications.

- Indoor and outdoor, day and night graphics for use in many types of backlit signs and awnings

Limitations of End Uses

We do not recommend this substrate for the following:

- Second surface decorating
- Removing existing graphics and reusing

Compatible Products and Equipment

These products are tested and proved to be compatible with the film described in this bulletin. The user is solely responsible for the graphic processing, appearance, performance and durability when the film is used in any way not described in this or related 3M literature.

Films for Screen Printed and Cut Graphics

- 3M™ Scotchcal™ Translucent Film Series 3630
- 3M™ Translucent Intermediate Graphic Film Series 1330
- 3M™ Opaque Intermediate Graphic Film Series 7025

Piezo Ink Jet Printers and Inks

- 3M™ Piezo Ink Jet Ink Series 1500
 - VUTEk UltraVu™ 150 Printer
 - VUTEk UltraVu™ 2360/3360 Printers
 - VUTEk UltraVu™ 3300/5300 Printers
- 3M™ Piezo Ink Jet Ink Series 2600UV
 - 3M™ Printer 2500UV
- 3M™ Piezo Ink Jet Ink Series 5500
 - Océ Arizona 600 Printer

Note: To use this material on the Arizona 600 Printer, the operator must cut two notches in each end of the core.

Electrostatic Graphics with Image Transfer

- Scotchprint® Electronic Graphics System
- Scotchprint® Toner Series 8700/8800
- 3M™ Trident Transfer Paper

Graphic Protection

- 3M™ Scotchcal™ High Gloss Overlamine 3640GPS
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520
- 3M™ Scotchcal™ Clear Graphic Film 8626 ES
- 3M™ Scotchcal™ Translucent Graphic Film 8628 ES

Characteristics

All values given are typical for unprocessed film unless noted otherwise and are not for use in specifications. Processing film may change certain values. If you have questions about your construction, contact the Technical Service helpline at 1-800-328-3908.

| Characteristic | Description |
|--------------------|---|
| Material | Polyester scrim embedded in a white-pigmented vinyl |
| Thickness | 23 to 27 mils (0.060 to 0.070 cm) |
| Light transmission | 24% minimum opacity |
| Tensile strength | <i>minimum</i> |
| Tear weft | 85 pounds/inch (15 kg/cm) |
| Tear warp | 113 pounds/inch (20 kg/cm) |
| Tensile weft | 150 pounds/inch (26.6 kg/cm) |

Note: For the full product names of the 3M products listed on this page, please see page 1.

| Characteristic | Description |
|---------------------------|---|
| Tensile warp | 150 pounds/inch (26.6 kg/cm) |
| Weight | 22.88 ounces/ sq. yd. (780 gr/m ²) |
| Gloss | 17.5 (minimum) with 60° gloss meter |
| Whiteness index | Reflective W.I. (E313) = 100 (minimum) |
| Approval Standards | U.L. 48 - Standard for Electrical Signs: Recognized Component ASTM E84, Class I |
| Flammability | Panagraphics II substrate when printed with 3M inks and <i>not</i> overlaminated, passes NFPA 701, "Standard Methods of Fire Tests for Flame-Resistant Textiles and Films." Laminated substrate does not meet NFPA 701 and is to be used exclusively for exterior applications. |
| Building codes | The user is responsible for determining and complying with all applicable building codes that affect the use of materials in interior and exterior awning, banner and sign face applications, including flammability standards. For information on flammability requirements, contact your local building code officials. |
| Roll sizes | Splice free 54 in. x 197 ft. (127 cm x 60 m) 60 in. x 197 ft. (154 cm x 60 m) 80 in. x 197 ft. (203 cm x 60 m) Seamed 7 feet to 40 feet in 6 inch increments (2.1 m to 12.2 m in 15 cm increments). The maximum roll size is 1370 square feet (123.3 square meters). For details, refer to the 3M Price Pages. |
| Sign face size | 430 square feet (40 square meters) per single sign face |
| Service temperature range | -22°F to +158°F (-30° to +70°C) |

Warranty Information

Graphic Performance Life

The actual performance life of a graphic depends on the:

- Use of compatible products
- Decorating method
- Proper selection and preparation of the substrate
- Application methods
- Angle and direction of exposure
- Environmental conditions
- Cleaning methods

Materials Only Durability

The durability stated in the Product Bulletin that is current at the time you purchased the film is the one that 3M will honor.

Signs and awnings made with Panagraphics II substrate and the materials shown in the following table are guaranteed to perform as stated in this bulletin. This is not a finished graphics warranty. The sole remedy is a 3M materials only reimbursement. A full year reimbursement is for the entire period of time stated. A pro-rated reimbursement is calculated by *number of months remaining* divided by *original expected warranty term*. For example, if 12 months remains of the original expected 60 months, the reimbursement may be up to 12/60 or 1/5 the cost of the materials.

Exceptions to Coverage

- Graphics and materials used in a non-vertical exposure.
- Film or ink cracking due to the flexing in cold temperatures.
- Damage due to the effects of severe environmental conditions or improper mounting.

| Materials Only Durability | | | |
|---|-----------------------|---------------------------|---------------------------|
| Substrate plus... | | Vertical Exposure | |
| Film, Ink or Toner | Graphic Protection | U.S. | Desert S.W. |
| Cut Graphics | | | |
| Unprinted film: series 1330 series 7025 | None 8519 8520 | 3 years pro-rated monthly | 2 years pro-rated monthly |
| Film series 3630, unprinted | None 8519 8520 | 5 years pro-rated monthly | 3 years pro-rated monthly |
| Film series 3630 printed with ink series 1900 or 9700UV | Clear from ink series | | |

Continued on the next page.

Note: For the full product names of the 3M products listed on this page, please see page 1.

| Materials Only Durability | | | |
|--|--------------------|---------------------------|---------------------------|
| Substrate plus... | | Vertical Exposure | |
| Film, Ink or Toner | Graphic Protection | U.S. | Desert S.W. |
| Piezo Ink Jet Printing | | | |
| Ink series 1500 ink series 5500 | None ¹ | 3 full years ¹ | 2 full years ¹ |
| | 3640GPS | 5 full years | 3 full years |
| Ink series 2600UV | None | 2 full years | 1 full year |
| | 8519 8520 | 5 full years | 5 full years |
| Electrostatic Imaging | | | |
| Trident transfer paper with toner series 8700 on films 8626 and 8628 | 8519 8520 | 3 full years | 2 full years |

¹ Double strike mode required.

Warranty Notes

Exposure Definition



face of graphic

Vertical Exposure

The face of the graphic is $\pm 10^\circ$ from vertical.

U.S. Desert Southwest Exposure

For graphics exposed to solar energy more than half of the time in Arizona, New Mexico and the desert areas of California, Nevada, Utah and Texas. A detailed map is available upon request.

Graphic Protection

Clears 1920DR and 9720UV should be applied by screen printing.

Overlaminates must be applied by a cold roll laminator.

Application Outside the U.S.

Contact the 3M organization for that country.

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**: Panagraphics II substrate 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. 3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. See the worldwide 3M™ MCS™ Warranty (www.Scotchprint.com or Fax-on-Demand), which gives the terms and limitations of the warranty.

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.

Making Graphics with Film Series 1330, 3630 or 7025

These films can be used for backlit (internally illuminated) graphics. Apply them to this substrate using the wet application method or dry hand/roll lamination.

No more than two layers of film may be applied to the substrate.

The recommended decorating temperature is 60° to 78°F (15° to 25°C). Also see **Tensioning and Attachment Guidelines**.

See Instruction Bulletin 5.30 for details on preparing Panagraphics substrate and wet application. Refer also to Instruction Bulletin 5.4 if you are dry applying film series 7025.

Piezo Ink Jet Printer Support Information

Ink

Always read and follow the ink manufacturer's written instructions on usage.

Total Ink Coverage

Do not exceed the recommended total ink coverage for this film. Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. Refer to the Instruction Bulletin for the ink system being used for the recommended total ink coverages.

Color Profiles

Many color profiles are available on our website at www.scotchprint.com.

Note: For the full product names of the 3M products listed on this page, please see page 1.

Drying

Caution

Always build enough time into your process to ensure adequate drying of the graphic. Poorly dried graphics can cause difficulty when rolling the graphic

Electrostatic Imaging

Refer to the documentation provided with the printer as well as the Product and Instruction Bulletins for the toners and transfer media used.

Fabrication

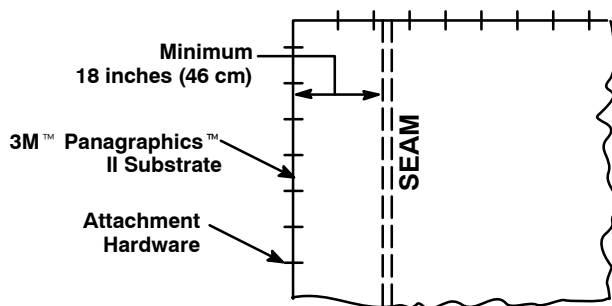
Graphic Protection

To maximize the performance of your sign or awning, 3M recommends using an approved overlamine or screen print clear for cut graphics and electrostatically-imaged graphics to provide resistance to abrasion or wear due to frequent cleaning.

With piezo ink series 1500, an overlamine is not required, but the graphic must be printed with the double strike mode to obtain the full guarantee.

Planning for a Seam

Plan your sign face so that the seam is at least 18 inches (46 cm) away from any attachment hardware that is perpendicular (at right angles) to the seam. See Figure 1.



Tensioning and Attachment Guidelines

Attaching and Tensioning

- 3M recommends attaching and tensioning this substrate in a cabinet at a temperature equal to or more than 45°F (7°C), whether the work is being done in a fabricator's shop or in the field.
- Any existing attachment system used currently should be tested prior to actual application.

Cold Temperature Field Installation

- Artificially warm the decorated substrate to at least 45°F (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 60°F (15°C). A large sign face is one that is more than 275 square feet (25 m²) and has a height that exceeds 11 feet (3.3 m) or a width that exceeds 25 feet (7.5 m).

Shipping

Rolling a Finished Sign Face for Shipping

Follow these guidelines if the graphics already have been applied to the substrate.

Selecting a Core Size

- For a graphic with a single film layer, use a core that is at least 3 inches (7.6 cm) in diameter.
- For a graphic with multiple film layers, use a core that is at least 6 inches (15 cm) in diameter.

Rolling the Graphic

- Roll the graphic with the graphics facing out to help prevent damage.
- Do not use masking tape, which may stain the substrate, to secure the roll.

Cleaning

Use only mild detergent and water for cleaning. Clean the finished graphic annually. Clean the graphic more often in unusually dirty environments.

Shelf Life and Storage

This substrate may be stored for up to 12 months undecorated and up to an additional six months decorated under the following conditions:

- Away from direct sunlight
- In a cool, dry environment
- Lined with a waxed paper slip-sheeting

Health and Safety

Caution

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information.

To obtain MSDS sheets for 3M products:

- By fax, call 1-800-364-0768 in the US and Canada or 1-650-556-8417 for all other locations.
- Electronically, visit us at <http://www.3m.com/msds>.
- 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.

Attention:

Authorized Graphics Manufacturers

Visit our password-protected website for exclusive product information, profiles and services. Certain restrictions apply.

1. Go to www.scotchprint.com.
2. Select a country.
3. Click *Login* on upper left side of screen.
4. Click Register.
5. Enter authorization code: **CGD_SGN**.
6. Complete the information and submit.
An e-mail will be sent when your authorization is completed.

3M Related Literature

Before starting any job, be sure you have the most current product and instruction bulletins.

The information in 3M bulletins is subject to change. Current bulletins, as well as a list of all bulletins updated within the last three months, are available at www.scotchprint.com or through our Fax-on-Demand system. Any warranty, if offered, is based on information in the bulletin that was current at the time you purchased the 3M products. The following bulletins provide the information and processes you need to properly make the graphics described in this bulletin.

Fax-on-Demand phone numbers:
United States or Canada: 1-800-364-0768
International: 1-651-732-6506

| Subject | Bulletin No. | FOD No. |
|-------------------------------------|--------------|---------|
| Product Bulletins | | |
| 3M™ Piezo Ink Jet Ink Series 1500 | 1500 | 4578 |
| 3M™ Piezo Ink Jet Ink Series 2600UV | 2600UV | 4594 |

| Subject | Bulletin No. | FOD No. |
|---|--------------|---------|
| 3M™ Translucent Intermediate Graphic Film Series 1330 | 1330 | 3033 |
| 3M™ Scotchcal™ Translucent Graphic Film Series 3630 | 3630 | 3009 |
| 3M™ Opaque Intermediate Graphic Film Series 7025 | 7025 | 9702 |
| 3M™ Scotchcal™ Overlamine 8519 and 8520 | 8519/8520 | 4524 |
| Scotchprint® Toner Series 8700/8800 | 8700 | 3514 |
| 3M™ Trident Transfer Paper | Trident | 3567 |
| 3M™ Scotchcal™ Clear Graphic Film 8626 ES | 8626 | 3533 |
| 3M™ Scotchcal™ Translucent Graphic Film 8628 ES | 8628 | 3534 |
| Instruction Bulletins | | |
| Printing with piezo ink jet ink series 1500 | 4.45 | 6545 |
| Printing with piezo ink jet series 2600UV | 4.50 | 6550 |
| Using toner series 8700/8800 | 4.12 | 6512 |
| Transferring and laminating electrostatically printed images | 4.7 | 6507 |
| Cold roll lamination | 4.22 | 6522 |
| Scoring and cutting | 4.1 | 6501 |
| Making digitally imaged, single and double-sided promotional banners | 4.15 | 6515 |
| Application, substrate selection, preparation and substrate-specific application techniques | 5.1 | 7001 |
| Application, general procedures for interior and exterior dry applications | 5.5 | 7005 |
| Application of 3M pressure sensitive films to Panagraphics II substrate | 5.30 | 7030 |
| Application and attachment of graphics | 5.21 | 7021 |
| Storage, handling, maintenance, removal | 6.5 | 8505 |
| Cleaning and repairing decorated awnings and sign facings | 6.1 | 8501 |
| Warranties | | |
| Worldwide 3M™ MCS™ Warranty | | 9503 |

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UltraVu is a trademark of VUTEK.*

Bulletin Change Summary

3M™ Piezo Ink Jet Ink Series 2300 and 4000 have been replaced by 3M™ Piezo Ink Jet Ink Series 1500, and the VUTEK UltraVu 150 Printer has been approved for use. With ink series 1500, an overlamine is not required, but the graphic must be printed with the double strike mode to obtain the full warranty. Ink series 2600UV for use with the Printer 2500UV have been added. Other changes are noted by a black bar in the margin.



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Fax-on-Demand document: 4010
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