Product Bulletin 8624
Release UKD, Effective December 2007

3M™ Scotchtape™ Graphic Film for Textured Surfaces IJ8624, RG8624, FN8624 and 8624ES
For Piezo Inkjet and Electrostatic Printing

Product Description
These are 50 micron (0.05mm) removable graphic films designed for either solvent-based piezo inkjet printing or electrostatic printing. When heated and applied with 3M’s application tools and techniques, these films conform to moderately textured surfaces on both flat and curved substrates, including concrete block, brick, industrial stucco and tile similar to those surfaces commonly found in sports arena, stadiums, restaurants, retail and other public venues.

Graphic Protection
Graphic protection prevents abrasion and adds stiffness that makes some applications easier. Using an overlaminate generally improves removal characteristics. See the Compatible Products section for the recommended graphic protection for your printing method.
- Piezo Inkjet printing: graphic protection is not always required, but it is recommended.
- Electrostatic printing: graphic protection is required to protect the toners.

Recommended Types of Graphics and End Uses
When constructed and used as described in this Bulletin, these types of graphics and end uses are covered by 3M’s Basic Product Warranty. Please read the entire Bulletin for details.

Graphics applied to indoor or outdoor moderately textured surfaces. See Application Characteristics on page 2 for details.

⚠️ CAUTION Be aware that graphics installed outdoors can develop mould or mildew on top of or behind the graphic, which may be a health concern for some individuals, especially during graphic removal.

3M Graphic Materials
For complete details about graphic construction options, recommended uses and durability, refer to the Product Bulletin for the base film or substrate (media) you are using. See 3M Related Literature at the end of this bulletin.

Piezo Inkjet Printing

Electrostatic Printing
- 3M™ Scotchtape™ Graphic Film for Textured Surfaces IJ8624 or RG8624
- Any piezo inkjet ink or printer (test and approve)
- 3M™ Scotchtape™ Lustre Overlaminate for Textured Surfaces 8524
- 3M™ Screen Printing Gloss Clear 1920DR

Characteristics

<table>
<thead>
<tr>
<th>Physical Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Colour</td>
</tr>
<tr>
<td>Thickness</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Adhesive type</td>
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<tr>
<td>Adhesive colour</td>
</tr>
<tr>
<td>Liner</td>
</tr>
<tr>
<td>Adhesion 24 hours after application</td>
</tr>
<tr>
<td>Chemical resistance</td>
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<tr>
<td></td>
</tr>
</tbody>
</table>
Application Characteristics

<table>
<thead>
<tr>
<th>Finished graphic application recommendation</th>
<th>Application surfaces: Moderately-textured surfaces such as concrete block, brick, industrial stucco and tile, as found on flat walls and/or simple curved architectural elements such as columns. See Instruction Bulletin 5.37 for details. Substrate temperature: 4° to 38°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied film shrinkage</td>
<td>40 micron  (0.04 mm)</td>
</tr>
<tr>
<td>Graphic removal</td>
<td>Varies with type of substrate; using heat enhances removal of film; may leave adhesive residue, may remove some surface paint or finish, may damage mortar</td>
</tr>
</tbody>
</table>

Warranty

3M Basic Product Warranty

This product has been tested and is believed to be a good product when used as recommended in this bulletin. The film is covered by the 3M Basic Product Warranty and is guaranteed to be free of physical and manufacturing defects. There is no warranty for printability, visual appearance, fitness for use or durability.

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 labour or non-3M materials charges.

Expected Performance Life

Films IJ8624 and 8624 ES are durable, high performance cast films with excellent imaging capability. To ensure that these films meet your specific needs, 3M recommends that graphic manufacturers test this film for satisfactory printing, cutting, adhesion and removal characteristics for the intended end uses. This information does not imply a warranted durability period.

Expected performance life indoor: greater than 2 years in most applications

Expected performance life outdoor: 3-6 months when not used in the freezing and thawing cycles described below; graphics perform much longer in dry, temperate environments

Key Factors That Influence Performance Life

- Installation techniques: improper installation techniques result in edge curling, lifting and/or poor adhesion.
- Adhesion for outdoor graphics. When testing film adhesion, the film is unlikely to be durable in outdoor applications if it can be easily removed from a textured surface (using a force of <1Kg /lineal 25mm).
- Outdoor graphics exposed to water from rain or irrigation systems. Water can be trapped behind graphics applied outdoors, leading to lifting as well as the creation of mould.
- Surface temperature. Textured substrates that reach temperatures in excess of 58°C may exhibit lifting, especially in mortar joints.
- Texture variation. More than 3mm variation in high and low spots of substrate texture and mortar joints, as well as square cut or undercut mortar joints, may exhibit lifting.
- Freezing and thawing cycles. For a textured masonry wall that has both an indoor facing side and an outdoor facing side and no effective moisture barrier, moisture vapor transmission occurs naturally when the indoor surface has a room environment that is warmer and moister than the outdoor surface. When a graphic is applied to the outdoor wall and there are cycles of outdoor freezing and thawing, moisture can be trapped between the wall and result in graphic lifting, as well as in spalling both within the wall and on the outdoor facing wall. Such damage can be unsightly and costly to repair.
- Removal. Unsound substrates, paint, texture-finished wallboard and textured wallpaper may be damaged upon graphic removal.
- Smooth surfaces. Use other appropriate films for adjacent smooth surfaces. Contact your 3M sales representative for assistance.
Fabrication
Piezo Inkjet Printing
When printed with solvent-based piezo inkjet ink, you can expect similar printing results to 3M™ Controltac™ Graphic Film IJ180.

Refer to the ink manufacturer’s Product and Instruction Bulletins for printing details.

Electrostatic Printing
Print the image onto the transfer media, then use heat and pressure to transfer the image to film 8624 ES. See the 3M Related Literature section for the bulletins that describe these processes.

Application
Important Note Application of this film requires the use of high heat, 3M’s textured surface applicator tools and unique application techniques. To help ensure a successful application, please view the 3M DVD, Textured Walls Application, or arrange for a training class. Contact your local 3M sales representative to assist you with either of these options.

Salt passing through masonry may become trapped behind films. Salt collection on the masonry surface for extended periods of time may cause staining or discolouration.

To support your training, comprehensive application techniques are available in the most current version of Instruction Bulletin 5.37.

Tips for Successful Textured Wall Applications
On textured surfaces, the film and adhesive must conform to irregular high and low spots, which often includes mortar joints. This film is designed to be effective on many of the most common moderate textures found in public stadiums, arenas and similar environments. However, due to the wide variation in substrate texture, you should verify that the film and 3M techniques described in this Bulletin and Instruction Bulletin 5.37 are suitable for each of your applications.

Use an installer trained in 3M’s techniques and with access to the required 3M tools.

Test each different textured surface you are considering at each location. See the instructions in the following section.

Film is more susceptible to lifting from deep or undercut mortar joints than shallow ones (about 3mm deep). Instruction Bulletin 5.37 discusses the various types of mortar joints.

In most cases, minor lifting does not detract from the impact of your customer’s message, nor from the overall durability of the graphic. Edge lifting, which is usually most noticeable at mortar joints, may be susceptible to picking and tearing if the graphic is at pedestrian level and within reach.

⚠️ CAUTION ⚠️
- Avoid extremes in temperatures.
- Freeze/thaw cycles that trap moisture behind graphics can cause lifting.
- Water may accumulate behind graphics applied to unsealed substrates, resulting in water bubbles that cause lifting.
- Intense direct sunlight may cause lifting.

Piezo Inkjet Printing Only
Use only overlaminate 8524 in piezo inkjet graphic construction, this should make removal easier.

Test Application Instructions
Tools
3M testing shows that the following test, which uses a small piece of film, is adequate for judging good adhesion to and appearance on textured surfaces. One of the following applicator tools will be needed for this test.

- 3M™ Power Grip Magic Pad Rivet Applicator CMP-1
- 3M™ Textured Surface Applicator TSA-1
- 3M™ Textured Surface Applicator TSA-3

Note: Do not attempt this test using a standard squeegee. You will not be successful.

Note: Some uses of these 3M tools are described and claimed in 3M Patents and pending Patent applications.

- Industrial heat gun with an electronic readout, capable of achieving and sustaining 537° C. See Instruction Bulletin 5.37 for examples of suitable guns.
- Heat and burn-resistant gloves
Substrate Preparation

Pre-cast concrete material can have an oily surface and be speckled with dust because of the production process. These characteristics inhibit good adhesion. If you have poor adhesion, use TSP (tri-sodium phosphate) and water according to the manufacturer’s instructions, or use 3M™ All Purpose Cleaner and Degreaser, diluted as recommended. Scrub the surface with a brush. Vacuum with a wet-dry vacuum, then allow to dry until it both looks and feels dry to the touch.

⚠️ CAUTION Risks of Using Heat Sources

- To reduce the risk of a serious burn, we recommend always protecting the hand that is holding the applicator tool with a heat-resistant glove.
- Do not use heat sources near solvent mixtures or residues, or in areas where solvent vapors may be present at hazardous levels.
- Never use an open-flame heat source in this process.
- Heat guns are capable of degrading roller and film. Do not point the heat gun directly at the roller. Use care not to overheat and burn the film.
- Provide adequate ventilation.
- Always read and following the heat gun manufacturer’s recommendations for use.

Procedure

1. Application technique
   a) Perform the test in an inconspicuous place on each type of substrate you plan to use for each of the larger graphics.
   b) Set the gun to 537°C.
   c) Work at a speed that allows the film to be heated enough to make it conformable. Overheating damages the film; under-heating does not permit conformability. Detailed troubleshooting is provided in the most current version of Instruction Bulletin 5.37.

2. Wear a heat-resistant glove on the hand that holds the applicator tool (TSA-1, TSA-3 or CMP-1).

3. If you are using the TSA-1 or TSA-3 roller:
   a) Hold the heat gun about 25mm above and immediately in front of the TSA-1 or TSA-3 roller.
   b) Start at an outside top corner and work straight across to the other side using this technique: Heat the film directly in front of the roller for about 1 second and then begin following closely with the roller, pushing firmly. Move at a slow, steady pace.
   c) Roll all the way to the edge.
   d) Move the roller down about 2 inches and repeat Step 3 until the film is fully applied.

Note: The 25mm width of the TSA-3 roller will prevent you from moving down 5cm. See FIGURE 1.

4. If you are using the CMP-1 pad:
   a) Heat the film for about 1 second and immediately press the film firmly with the CMP-1 pad for about another second to conform the film around the texture.
   b) Move to the next section of film—about 1/2 the width of the pad—heat the film and press firmly with the pad.
   c) Continue with this procedure across the width of the film sample and then start a new row, working in this manner until the film is fully applied.
   d) Do the next pass across the film by moving down about 1/2 the width of the pad. Repeat Step 4 until the film is fully applied. Refer to FIGURE 2.

Note: The 25mm width of the TSA-3 roller will prevent you from moving down 5cm. See FIGURE 1.

5. If the film lifts immediately, the application technique may not have been satisfactory, or the texture is too severe for the film. Do not attempt to go over the sample again; try another one.

6. If possible, leave the film in place for one week, then check for good adhesion and acceptable removal. Note that film 8620 ES typically shows more lifting than film 8624 ES.
**Shelf Life, Storage and Shipping**
See Instruction Bulletin 6.5 for details.

**Shelf Life**
Total shelf life: 2 years
Up to 2 years unprocessed, OR process within 1 year and apply within 1 year of processing

**Storage Conditions**
- 38°C maximum; do not freeze
- Out of sunlight
- Clean dry area
- Original container

**Shipping Finished Graphics**
Be sure graphics are fully dried before rolling. Ship flat or rolled printed side out. Graphics with an overlaminate should be rolled on a 16cm (6 inch) or larger core; unlaminated graphics may be rolled on a 8cm (3 inch) core.

**Health and Safety**
When handling any chemical products, read the manufacturers’ container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information.
Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department on 01344 858000

**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. The following applicable Bulletins provides 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.

**Shipping Finished Graphics**
Be sure graphics are fully dried before rolling. Ship flat or rolled printed side out. Graphics with an overlaminate should be rolled on a 16cm (6 inch) or larger core; unlaminated graphics may be rolled on a 8cm (3 inch) core.

<table>
<thead>
<tr>
<th>Product Bulletins</th>
<th>Electrostatic Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotchprint® Exterior Toner Series 8700/8800 ES</td>
<td>8700</td>
</tr>
<tr>
<td>3M™ Trident Transfer Paper</td>
<td>Trident</td>
</tr>
<tr>
<td>3M™ Scotchcal™ Lustre Overlaminate 8519 and 8520</td>
<td>8519/8520</td>
</tr>
<tr>
<td>3M™ Screen Printing Ink Overprint Clear 1920</td>
<td>1900</td>
</tr>
<tr>
<td>3M™ Piezo Inkjet Protective Clear 8530</td>
<td>8530</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Piezo-Inkjet Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M™ Scotchcal™ Lustre Overlaminate 8524</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instruction Bulletins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design of graphics</td>
</tr>
<tr>
<td>Scoring and cutting</td>
</tr>
<tr>
<td>Screen printing with ink series 1900</td>
</tr>
<tr>
<td>Transferring and laminating electrostatically printed images</td>
</tr>
<tr>
<td>Using toner series 8700/8800</td>
</tr>
<tr>
<td>Cold roll lamination</td>
</tr>
<tr>
<td>A Guide to Understanding and Applying Graphics to Common Indoor and Outdoor Wall Surfaces</td>
</tr>
<tr>
<td>Storage, handling, maintenance, removal</td>
</tr>
</tbody>
</table>
Important Notice to Purchase

The 3M products described in this publication are covered by a 3M warranty and limitation of liability.

3M’s warranty provides that if 3M finds that goods are defective in material or workmanship they will be replaced or the price refunded at 3M’s option but note that 3M does not accept liability for other direct losses (except for personal injury or death) or consequential losses relating to defective products or from information supplied by 3M. Purchasers and users of 3M products, and not 3M supplying companies, are always solely responsible for deciding on the suitability of the 3M product for their required or intended use.

Technical Assistance

For help on specific questions relating to 3M Commercial Graphics Division Products, contact your local Technical Service Representative.

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