Product Description

3M CRYSTAL Glass Finishes (the "Products") offer both dusted and frosted designs that provide the look of sandblasted or etched glass at a fraction of the cost. On a user test and approve basis, you can digitally print on the Products for both customization and personalization options. These Products have a permanent, pressure-sensitive adhesive and a transparent polyester liner for easy cutting. They are available in a dusted crystal finish in translucent white or translucent frosted crystal finish in six colors.

This installation guide describes the wet installation method for applying Product to a variety of flat surfaces, such as interior perimeter glass and limited exterior applications.

Application Surfaces

Based on available test data, the following application surfaces are recommended as noted.

- Glass
- Acrylic
- Polycarbonate

NOTE: Some plastic application surfaces can outgas. Outgassing is the release of a gas as certain plastics or coated surfaces dry and cure. This occurs over a period of time, but not indefinitely. Product that is applied to a surface that is still outgassing will develop air bubbles in the Product that may appear some time after the installation.

3M assumes no liability for bubbles that appear in the applied Product due to outgassing.

Test a Plastic Application Surface for Outgassing

1. Apply a 5 in. x 5 in. (135mm x 135mm) piece of the Product to the plastic application surface in question.
2. If possible, oven bake the sample for 2 hours at 150°F (65°C) or bake for 5 minutes at 350°F (176°C). If oven baking is not an option, allow the sample to sit at room temperature for 24 hours.
3. Examine the sample. Bubbles under the Product indicate that the plastic application surface is outgassing. If no bubbles occur, the application surface is not outgassing.
4. To estimate how long outgassing may continue, repeat the test daily, using a new sample, until bubbles no longer appear under the Product.
5. If outgassing continues for a long period of time, consult the plastic manufacturer for assistance.

High Humidity Conditions

Do not install CRYSTAL Glass Finishes in locations in which the film may frequently come into contact with water or where condensation often occurs.

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Installation Tools and Supplies

- 3M™ Hand Applicator PA-1 (Blue or Gold) with 3M™ Low Friction Sleeve SA-1 (for use over the hand applicator)
- 4 in., felt-wrapped plastic applicator, 6mm or greater thickness, nick free
- 4 in. Window scraper with replacement blades
- 8 in. Window cleaning squeegee with replacement rubbers
- Razor blade knife with stainless steel replacement break-away blades
- Ruler with nick-free edges
- Scotch™ Masking Tape

- Clean, lint-free paper towels
- Drop cloths (absorbent) or plastic sheeting
- Spray bottle (a garden style, 1 or 2 gallon, low pressure sprayer works well)
- Water
- Mild, non-lotion containing liquid detergent; no soaps, waxes, oils, or enzymes
- Isopropyl alcohol (70% or industrial strength)

Application Tapes

Use 3M™ Premasking Tape:

- as an installation aid to increase stiffness.
- to prevent stretching and damage during installation.
- when little or no liner is exposed.
- for large letters and/or wide stroke width.

Use 3M™ Prespacing Tape:

- to hold cut and weeded letters or graphics in registration after removing the Product liner.
- to protect cut graphic parts from scratching or damage during installation.
- when large amounts of liner are exposed.
- for small letters and/or narrow stroke width.

Table A. Recommended Application Tapes

Application Tape	Dusted	Frosted
3M™ Premasking SCPM-3	●	●
3M™ Premasking SCPM-44x	●	●
3M™ Prespacing SCPS-2	●	○
3M™ Prespacing SCPS-53x	●	●
3M™ Prespacing SCPS-55	○	●

● Recommended for use

○ Not recommended for use

Surface and Work Area Preparation

Use the following steps to prepare the application surface for Product application. An experienced installer's techniques may vary.

Prepare the Application Solution

Prepare a water and liquid detergent solution to use for applying the finish. It should have a concentration of approximately 0.1% to 0.2% detergent. A solution of about 1 teaspoon of mild detergent to 1 gallon of water is sufficient for about 36 square yards of application surface. Pour this solution into your spray bottle.

- High detergent concentration causes the applicator and finish to slip, resulting in insufficient application pressure.
- Low detergent concentration causes the finish to stick or prevents the applicator from traveling smoothly across the finish, which results in an inconsistent application and leaves excess water behind.

Prepare the Installation Area

- Protect the areas surrounding the installation from the application solution over spray and drips, using masking tape and/or drop cloths as appropriate.
- If possible, turn off or cover the heating or air conditioning units and ventilation ducts in the application area prior to starting the installation.
- For the best bonding conditions, the recommended application temperature is 60°F-100°F (16°C-38°C) and the application surface should be at room temperature or higher. In the lower end of this range, additional application pressure on the Product can encourage better adhesive bonding. Attempting to install the Product at temperatures below the recommended range can cause the adhesive to become so firm that it will not develop maximum contact with the application surface.

Surface and Work Area Preparation (continued)

Measure and Cut the Panels

Product panels may be cut to size by hand or electronically cut. If cut by hand, any nicks or burrs on the edge of the ruler used to mark and cut the finish could scratch it. Apply masking tape to the side of the ruler that contacts the finish to help prevent damage. Use a very sharp cutting blade to ensure clean, smooth edges. Make sure the finish is trimmed so its does not touch any caulking that may be used on the edge of the application surface. Contact with caulking may cause the finish to lift at the edges.

This Product may be cut using electronic cutting equipment.

1. Use clean, sharp blades that are set to the proper depth to avoid cutting the liner.
2. Apply a prespacing tape to hold the cut pieces together during installation.
3. Roll the Product onto a 6 in. (15 cm) core, liner side in, or lay flat until ready to use.
4. Always apply the product as soon after cutting as possible.
5. Weeding - the excess Product should be weeded (removed) as soon as practical. This is to minimize the possible effect of adhesive flow 24 or more hours after cutting.

Check the Application Surface for Coatings

Many application surfaces have wax or other invisible coatings on them that interfere with adhesion. Use the following procedure to identify and eliminate such coatings. Be sure your customer understands and agrees with this procedure.

• Place drops of water on several areas of the application surface. Water beads indicate that the glass or plastic has a coating that must be removed for good Product adhesion.
• Saturate a lint-free paper towel with 70% isopropyl alcohol (IPA) and wipe clean the application surface. Wipe the application surface clean before the IPA evaporates with a lint-free paper towel.
• Check again for water beading. If there is no beading, proceed with application surface preparation.

Clean the Application Surface

1. Place drop cloths and/or plastic sheeting to protect the application area below the application surface.
2. Spray the application solution on the application surface.
3. Scrape glass to remove dirt and other contaminants on the surface of the glass.

NOTE: Do not scrape plastic surfaces as this will cause scratches that may show through the Product.
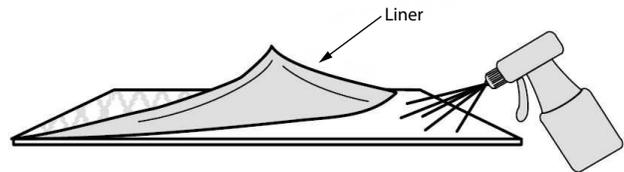
4. Thoroughly rinse the application surface using the sprayer, then squeegee the entire application surface, wiping the squeegee after each stroke.
5. Dry the application surface edge and frame thoroughly.
6. Apply the Product per the installation procedure immediately after cleaning the application surface. Any dirt or contaminates which settle on the application surface after cleaning will inhibit adhesion and may be visible after application.

Installation Procedure

NOTE: Bring the Product to room temperature before installation.

Remove the Liner and Wet the Adhesive

1. Generously spray the application surface with the application solution.
2. Lay the FRONT SIDE of the Product against the application surface so the liner is facing you.
3. Peel back a few inches of the liner. Be sure you pull the liner away from the Product, not the Product from the liner, to avoid stretching the Product.
4. Generously spray the exposed adhesive with the application solution.
5. Continue peeling back the liner and spraying the adhesive with the application solution until the liner is completely removed.

Figure 1. Peel back some liner and spray the adhesive.

NOTE: If the Product panel is large, you may need assistance for the next two steps.

6. Flip the Product and position it on the wetted application surface so the adhesive contacts the application surface.

Apply Product without an Application Tape

1. Recheck the alignment, spray the surface of the Product with application solution to reduce friction.
2. Apply the Product using either the hand applicator with low friction sleeve or felt-covered plastic applicator.
3. Starting at the top in the center of the finish and using firm and consistent pressure, make overlapping strokes from center to edges with the applicator. The goal is to push the water out to the edges so the adhesive makes good contact with the application surface.
4. For the rest of the panel, move the applicator down to overlap the previous strokes by about 50%, and stroke from center to edge, center to edge again, until the panel is fully applied.
5. Wipe the edges of the Product with a clean, lint-free towel to remove any drips.

Apply Product with an Application Tape

NOTE: There is no need to wet the surface of the Product. Apply the Product using the steps above.

1. Wait 20 to 30 minutes for some adhesion to build. Use the longer time frame when the temperature is at the cooler end of the recommended application temperature range.
2. Remove the application tape. Begin at a corner and carefully pull it away from the Product at a 180 degree angle.

NOTE: When you remove the application tape from the Product, the pulling force loosens the adhesive at the edges of the Product, particularly when the Product is applied at or near the minimum installation temperature.

3. Use the hand applicator to apply pressure to all edges of the Product, using firm overlapping strokes.
4. Wipe the edges of the Product with a clean, lint-free towel to remove any drips.

Cleaning and Maintenance

After the application is complete, some application solution may remain between the glass and the finish. This causes small water bubbles or clouding that disappears as the water evaporates. This can take up to several days, depending on environmental conditions.

- Do NOT touch the finish during this time.
- Protect the finish from abuse.

Cleaning Applied Product

NOTE: The Product may be cleaned beginning 30 days after installation.

Regular cleaning will help maintain the Product's appearance. Use only clean, nick-free tools and wipe gently only in one direction. Do not use ammonia, chlorine, or organic-based cleaning products, polishing or cleaning compound, sponges, brushes or electric polishing equipment:

- If there is dust and grit, wipe it off with a soft, damp cloth.
- If it is soiled, but not gritty, use water and squeegee.
- If there is heavier soil, use a mild liquid detergent and water solution, then clear water, and wipe gently with a cloth wipe.

Removal

The Product can be removed with low heat or the use of 3M Adhesive Remover Citrus Base and a scraper.

Transportation and Storage

- 40°F to 90°F (4°C to 32°C)
- Away from direct sunlight
- Clean dry area
- Original container

Safety

⚠ **CAUTION: Risk of Glass Breakage Due to Thermal Expansion**

Glass surfaces exposed to sunlight will absorb heat. A glass surface covered by a film with high opacity or dark-colored ink, including films with small areas of high opacity or dark-colored ink, will absorb more heat. Heat absorption can create thermal stress that results in glass breakage, or thermal cracking. This can cause personal injury and property damage. 3M specifically does not recommend using a film with high opacity or dark-colored ink on glass surfaces with significant exposure to sunlight.

Technical Information

Technical information and data, recommendations, and other statements provided by 3M are based on information, tests, or experience which 3M believes to be reliable, but the accuracy or completeness of such information is not guaranteed. Such technical information and data are intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. The typical values shown should not be used for the purpose of specification limits. If you have questions about this Product, contact the Technical Service helpline at 1-888-650-3497.

WARRANTY

Limited Warranty

1. 3M warrants that a Product will be free from defect in manufacture ("3M Warranty") on 3M's Product shipment date ("Warranty Period"). EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, THE 3M WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, RIGHTS OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND THOSE ARISING FROM A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. THE BUYER IS RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR ITS PARTICULAR PURPOSE AND APPLICATION METHODS.

2. For a buyer's convenience, 3M may provide engineering or technical information, recommendations, installation instructions, and other information or materials relating to Product ("Other Product Information"), but 3M makes only the 3M Warranty and does not warrant any Other Product Information.

3. 3M has no obligation under the 3M Warranty as to Product that has been: (a) modified, altered or processed in any manner; (b) stored, applied, installed, or used in a manner other than that 3M recommends in this Technical Data Sheet and in all Other Product Information; (c) damaged through contact with a person or thing, misuse, accident, neglect, or other action by anyone other than 3M; or (d) exposed to excessive heat, humidity, dirt or UV light.

Limited Remedy

If any Product is proven not to have met the 3M Warranty on the buyer's receipt, then the buyer's exclusive remedy, and 3M's sole obligation, will be, at 3M's option, to replace that Product quantity or refund the applicable purchase price.

Limitation of Liability

3M WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO A BUYER FOR DIRECT (other than the Limited Remedy stated above), SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS) IN ANY WAY RELATED TO A PRODUCT, THIS TECHNICAL DATA SHEET, OR OTHER PRODUCT INFORMATION, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

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