Application and Removal of
3M™ Dichroic Glass Finish DF-PA

General Product Uses

3M Dichroic Glass Finish DF-PA film offers a way to create unique, ever-changing colour to many interior building surfaces. Influenced by the colour of the light, this transparent film provides a dichroic colour effect, meaning it appears to change colour when viewed at various angles.

The “Blaze” films shift colours in the warm tones of cyan/blue/magenta and red/gold colour regions of the spectrum.

The “Chill” films shift colours in the cool tones of blue/magenta/yellow and gold/blue colour regions of the spectrum.

This PVC-free film has a clear, pressure-sensitive adhesive that can be applied to glass. A hard coated surface layer helps resist scratching during normal use.

Suitable Uses

The film is suitable for interior application to uncoated, flat glass.

Unsuitable Uses

- Printing on the film.
- Application unsmooth surfaces, such as those with frosted or textured finishes and other than flat glass.
- Application to a coloured or printed substrate that could either impede good adhesive “wet out” during installation, or affect the installed appearance of the film in an unacceptable manner.

Application Precautions

- Do not apply stickers or seals to the film or write on it with markers.
- When joining films, there could be a slight difference in appearance in colour, etc., depending on the product lot, so do not use products from different lots next to each other.
- The surface of the film could be damaged by burrs on the ruler used during joint. Be sure to use a ruler that has no burrs. Further, take such measures as putting masking tape on the back of the ruler.
- Some types of glass may crack as a result of the high temperature caused by the glass’s material properties and application conditions. To ensure a safe application, calculate the probability of this thermal crack prior to the installation.

Application

Inspect the Application Surface

Examine the surfaces where the 3M Dichroic Glass Finish DF-PA film will be applied to ensure they are free of defects, imperfections, texture, colour or printing, that will affect the intended appearance of the installed film. Document such problems in writing and notify the owner or architect prior to installing the film.

Check the Application Surface for Coatings

Many windows have 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 substrate. Water beads indicate that the glass has a coating that must be removed for good film adhesion.
- Use a cleaner to remove the coating. Follow the manufacturer’s instructions. Rinse and dry.
- Check again for water beading. If there is no beading, clean the substrate.
Preparation of Application Area

- Cover interior finishes near the application area to protect them.
- If possible, turn off or cover the heating or air conditioning units and ventilation ducts in the application area prior to starting the application.
- For the best bonding conditions, the recommended application temperature is 12 °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 film can encourage better adhesive bonding. Attempting to install the film at temperatures below the recommended range can cause the adhesive to become so firm that it will not develop maximum contact with the substrate.

Cleaning of the Application Surface

To enhance the application and appearance, clean and dry the application surface thoroughly.

1. Place drop cloths or plastic sheeting and absorbent towelling below the application surface to protect areas such as sills, sashes and flooring from drips of application solution.
2. Apply application solution to application surface using pressure sprayer tank.
3. Scrape the application surface, as needed, to remove dirt and other contaminants.
   Note: Do not scrape plastic substrates as this will cause scratches that may show through the film.
4. Thoroughly rinse the application surface using the pressure sprayer tank and squeegee the entire surface, wiping the window squeegee after each stroke.
5. Dry the edges of the application surface and frame thoroughly.
   Note: Apply the film immediately after cleaning the application surface. Any dirt or contaminates which settle on the surface after cleaning will inhibit adhesion and may be visible after application.

Preparation of 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. Pour this solution into your sprayer.

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

Application of film

1. Measure the application area and then cut the film approximately 5 cm wider and 5 cm longer than the application area.
2. Remove the liner, making sure the exposed adhesive does not contact any contaminated surfaces.
3. Lightly spray the exposed adhesive with the wetting solution. Use just enough solution to allow the film to be easily positioned on the substrate.
4. Working at a top corner of the substrate, align one edge of the film approximately 1.5 mm from the outer vertical and horizontal edge. If you start the application in the upper left corner, that means the excess film will be at the bottom and right.
5. Lightly spray the film side of 3M™ Dichroic Glass Finish DF-PA with wetting solution.
6. Starting at the top and working down, and using a clean, nick-free squeegee, use light, overlapping strokes to apply the film and remove all wetting solution. Wipe the squeegee blade with a clean cloth, and mop up excess wetting solution as you work down the film. Check to make sure you maintain a good alignment.
7. To trim the excess film, first cut the corners diagonally just outside the finished size, then cut the excess horizontal and vertical film. This method helps prevent the film from creasing while trimming. All film edges must be neatly and squarely cut at a uniform distance of 1.5 mm to 3 mm from the window sealant (if applicable) or outer edges of the substrate. Use a clean, sharp blade and change it frequently to ensure you do not snag or rip the film.
8. Lightly spray the film with the wetting solution. Resqueegee the film, this time using firm overlapping strokes, and again wiping the blade often and mopping up excess wetting solution.

9. To dry the edges of the film and ensure good edge adhesion, wrap a lint-free towel around the edge of a standard squeegee, e.g. 3M™ Gold Squeegee PA-1-G and squeegee around all edges of the film.

10. Wipe the frame dry.

11. Inspect the installation to ensure a good appearance. Look for bubbles, ragged cuts, etc.

12. Clean the work area and dispose of leftover film, liner, cleaning cloths, solutions, protective covers, etc. in the proper way.

**Maintenance**

Regular cleaning will help maintain the product’s appearance; we would recommend this is carried out every 30 days.

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- Remove dust and grit, using a soft, damp cloth.
- To clean the films, use water and a nick-free squeegee, moving the squeegee in only one direction.
- Where the film is soiled, use a cloth with a mild liquid detergent and water solution; rinse off the detergent solution with clean water.

Do not use ammonia, chlorine, or organic based cleaning products, polishing or cleaning compounds, sponges, brushes or electric polishing equipment.

**Removal**

Remove 3M™ Dichroic Glass Finish DF-PA by lifting one edge and pulling it off at a sharp angle – about 135 degrees – with smooth, even tension. A scraper may be used to lift the edge and to remove adhesive residue on the surface without a heat gun and or chemicals.

It may also be helpful to cut the film into strips about 5 centimeters wide and then pull off each strip. Use a razor blade with safety handle.

It is recommended that removal is carried out at room temperature (15°C – 20°C).

**Remarks**

This bulletin provides technical information only.

**Important Notice**

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.

**Health & Safety**

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.

**Additional Information**

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