

TECHNICAL BULLETIN

Avery Dennison® Poly Films

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Introduction

Avery Dennison® Poly and Universal Anti Graffiti Films are a range of clear and metallized exterior installation films specifically developed to upgrade rigid plastic glazing, featuring a unique adhesive formulation for application without bubbles, and outstanding warranties. When professionally installed on the exterior of existing polycarbonate or PMMA glazing, Poly films protect easily scuffed plastic or significantly reduce uncomfortable heat buildup and glare.

PRODUCT DESCRIPTION

Two Product lines - for clear protection, and solar control.

Poly and Anti Graffiti Films

Clear exterior films safeguarding plastic substrates from scratches, discoloration and graffiti.

- **Poly Clear 4 mil X** – protective film
- **Poly Clear 6 mil X** – protective film
- **AG Clear 4 mil ix** – thick sacrificial film with wipe-clean anti-graffiti hard coating
- **AG Clear 6 mil ix** – thick sacrificial film with wipe-clean anti-graffiti hard coating

Exterior Reflective Solar Film

High-performance, transparent exterior silver films to reduce glare and heat buildup.

R Silver 20X Poly - solar control film with SR hard coat for vertical, sloped and horizontal exterior applications.

Product Application

Poly films are suitable for exterior application to most polycarbonate sheets and PMMA acrylic substrates (Plexipex, Plexiglas, etc). However, we do not recommend installing these films on corrugated substrates. We recommend performing a trial installation before executing large projects, or if the installer has no previous experience with plastic glazing. Use the installation procedures outlined in this guide to install 1m², and check the film after a few days for bubbling, creasing or tunneling or lack of adhesion. If any of these phenomena should appear, please contact us for advice. Scratch resistant protective coatings on the plastic sheet may prevent successful adhesion of the film to the substrate. Check adherence to the substrate before applying the film to unidentified or SR coated rigid plastic glazing material (see Appendix 1 for Crosshatch Test Method for Coated or Unidentified Substrates).

Installation Instructions

The installation process for Poly films on rigid plastic glazing is similar to the installation of standard exterior solar films on glass. However:

- Great care must be taken not to scratch the plastic surface when preparing the substrate for installation.
- The wetting solution requires a slightly different composition.
- Particular attention must be paid to removal of all moisture between the film and substrate.
- An edge sealant must be used on all four edges for exterior application of metallized films.
- Special care must be taken when installing on multiwall sheets to ensure even adhesion of the film to the substrate, paying attention to complete removal of water from the light parallel grooves on the surface.

While the Poly product line is compatible with multiwall polycarbonate and the majority installations to date of Poly have been completed for roofing applications on multiwall polycarbonate, application requires special attention to remove excess water during installation.

Installation must therefore only be performed by suitably skilled Avery Dennison accredited applicators. Avery Dennison fully warrants professionally installed Poly window films against crazing, cracking, demetallising, delaminating, changing color or adhesive failure. Any ensuing warranty claims relating to improper installation will be borne by the applicator.

Joint seaming

If joint seaming is required, please use neutral edge sealant Dow Corning 1199. The use of any chemicals for cleaning should be done with caution. Refer to the manufacturers Material Safety Data Sheet and follow all instructions and guidelines.

Substrate Surface Preparation

Surrounding air temperature during installation should be between 5-40°C.

- Do not install in windy or rainy weather!
- Before installing the film, keep in mind that polycarbonate, PMMA and other plastic substrates are easily scratched, and are sensitive to chemicals
- Use only non-abrasive cloths and soft squeegees on the substrate.
- Use water and detergent-free soap, such as Baby Shampoo.

Poly X – (clear and sun control)

Follow standard installation procedures, but pay particular attention to the following:



Use a good cutter blade to cut the film edges without hesitation. Any edge you leave on the film may cause the film to start to separate.



Spray the scratch resistant surface of film with the wetting solution (see below), so that the squeegee will move smoothly and uniformly across the surface of the film.



Use a 6" heavy-duty safety film squeegee, applying firm pressure to work out the water from top to bottom. Removal of all the water is critical to the success of the installation.



Repeat the above steps to ensure complete removal of moisture.

Wetting Solution

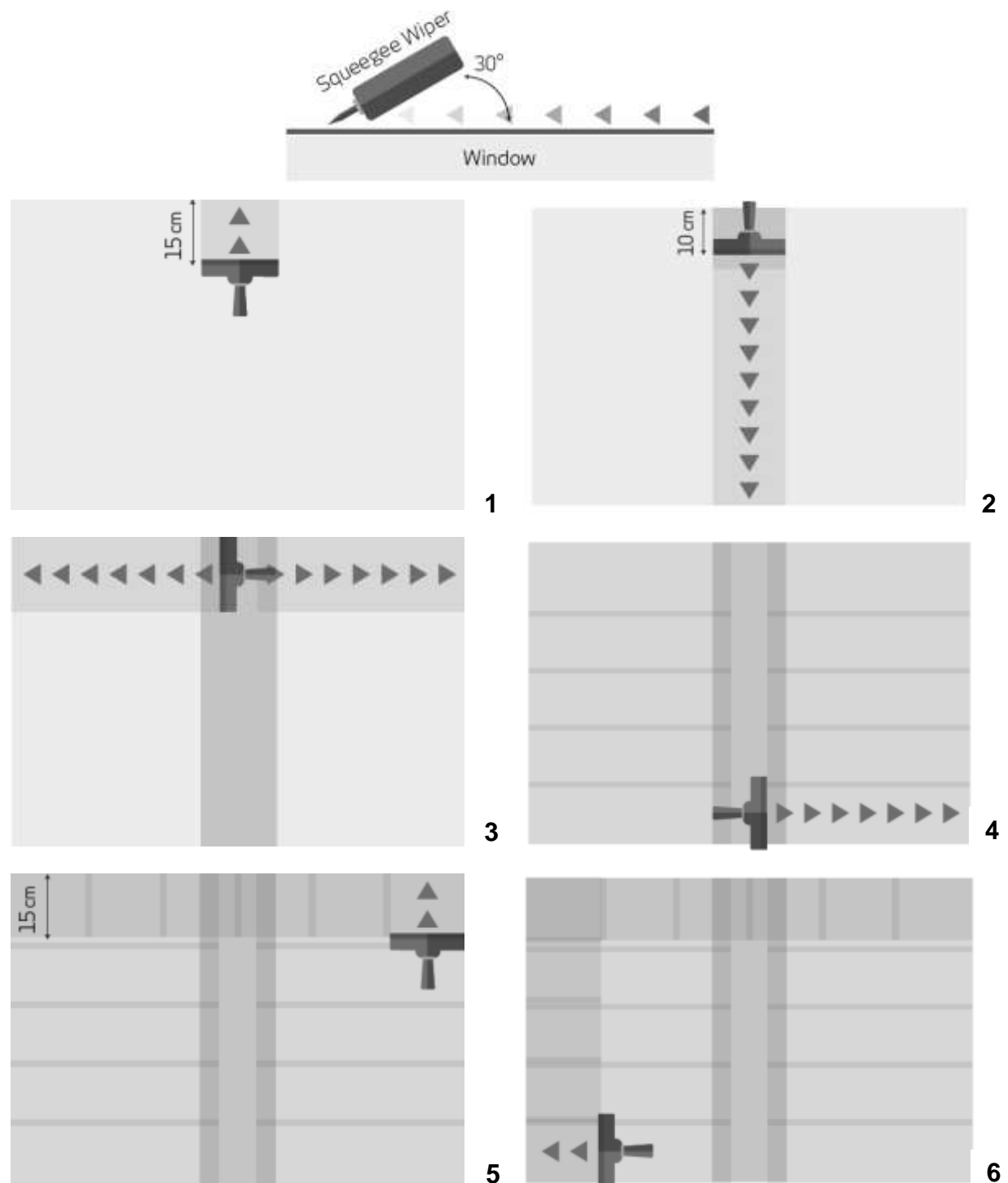
The wetting solution should contain a higher concentration of detergent-free soap (such as Baby Shampoo) than is generally used for applying film to glass. Use 20-30 drops (2cc) per liter of water.

Any detergent-free soap used should not contain additives such as lanolin or silicone that may affect adhesive bond strength.

Edge Sealing

External application of **R Silver 20X Poly**, metallized Exterior films requires a neutral silicone edge sealant for Exterior use (such as Max 5000 by GE, Dow Corning 995, or an equivalent neutral silicone sealing agent for Exterior application) on all four sides of the film. It is important that profiles be clean of paint, emulsions, etc prior to installation. Edge sealant must be used on all four edges, applied at least 24 hours after installation (to allow the film to dry), but completed within 3-4 days of installation.

Recommended Squeegee Technique





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Maintenance

Exterior films should be cleaned three times a year in order to maintain the appearance and clarity of the film. This is particularly important on all sloped or horizontal installations, since the accumulation of dirt and precipitation can cause problems. Clean by spray with soapy water under moderate pressure, followed by rinsing the roof with purified water using a moderate-pressure hose. In case additional cleaning is required, use a paint roller with a foam sleeve and soapy water. Installations in areas with heavy atmospheric pollution (such as in dense industrial zones) may require more frequent cleaning.

Warning: do not use cleaning solutions that contain ketones such as MEK or acetone. Avoid use of brushes and squeegees used in standard window washing.

Film Removal

Within the warranty period, film removal will be clean. However, after this time, removal will become progressively more difficult. We recommend replacing the film as soon as the warranty expires. Film removal will be easier and more effective if the surrounding air temperature is between 15-30°C. We recommend removing the film by delicately scoring the film (without touching the substrate!) into strips of ~5 cm width with a Stanley knife, and carefully starting removal of the film at the edge using a window film scraper. Remove the film strip from the surface by peeling slowly and smoothly at a 90° angle, in a continuous movement. Some adhesive residue may remain on the substrate after removing the film, and can be removed by gently wiping the adhesive traces (not the entire surface) with a non-abrasive cloth or pad dipped in IPA (iso-propanol) or denatured alcohol (ethanol).

Please ensure that all customers receive instructions of maintenance and film removal.

Appendix

Crosshatch Adhesion Test for Coated or Unidentified Substrates

To check adherence of Poly film to coated substrates, the following procedure should be performed:



Clean a small, non-visible surface area (0.25 m²) of the plastic sheet, as per instructions above. Cut a small piece from the film (20 x 20 cm), and remove release liner.



Install the film onto the cleaned surface by dry installation: Adhere one corner of the film to the plastic sheet surface, and using a soft squeegee, carefully position and smooth the rest of the film sample, avoiding air bubbles as much as possible.



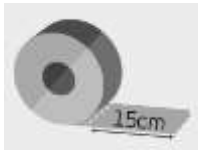
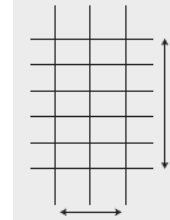
Smooth out any air bubbles.



Wait at least two hours for sufficient initial tack.



Use a sharp Stanley knife to cut a small crosshatch lattice shape in the center of the film (taking care not to score the substrate), dividing the small area into 10 relatively even, squares, as in the diagram:



Cut a 15 cm long strip of any 1" sticky tape, and adhere well, using your fingertip to firmly smooth the tape onto the lattice, leaving about 5 cm from each end.



Peel the tape swiftly from bottom to top, at a 90o angle.

Evaluation: If no film is removed, adhesion is good enough to continue to a trial installation. However, if any squares of film are peeled off by the tape, there is insufficient adhesion, and installation on the coated substrate is not recommended. In either case, we recommend repeating the test.

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