

Application of Avery DennisonTM Translucent Pressure Sensitive Films to Avery Dennison Approved, Flexible-Faced Signage Material

Instructional Bulletin #4.01 (Revision 10)

Dated: 12/31/14

1.0 Scope

This bulletin gives specific instructions for application of Avery DennisonTM translucent film to recommended flexible-face signage material.

2.0 Recommended Tools

- Plastic Applicator, (squeegee).
- Low friction sleeve, (Use a low friction sleeve on the plastic applicator to minimize the possibility of surface scratching of un-premasked film).
- Pin (air release tool).
- Razor blades/cutting knives.

3.0 Avery Dennison Approved Flexible-Face Signage Material

The following flexible-face substrates have been tested and found compatible with Avery Dennison Translucent Film. ICS warranty may be available on some of these substrates. Refer to the warranty statement for details.

| Manufacturer | Product Name |
|--------------------------|-----------------------------|
| Verseidag Seemee US, Inc | Seemee® IV |
| Ultraflex Systems, Inc | Ultralon® IV BL |
| Arlon | Flexface FX® MP Flexface |
| 3M | Panaflex 945 |

Note: All statements, technical information and recommendations about Avery Dennison products are based upon tests believed to be reliable but do not constitute a guarantee or warranty. All Avery Dennison products are sold with the understanding that Purchaser has independently determined the suitability of such products for its purposes.

4.0 Storage of Translucent Film

- The fabricator may store films for one year. Film and markings must be stored in a clean area away from excessive moisture and direct sunlight, with ambient temperatures of 73[±]5° F (23[±]3° C).

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5.0 Storage of Flexible-Face Signage Material

- Store in a clean environment free from excessive moisture and direct sunlight, with ambient temperatures of 73 ±5 ° F (23 ±3 ° C).

6.0 Substrate Preparation

It is recommended the film be applied when air and application surface temperature is in the range of 40° to 90° F (4° to 32° C). All surfaces must be considered contaminated and **MUST** be cleaned prior to application of film. Refer to Instructional Bulletin #1.10 Substrate Cleaning and Preparation for Avery Dennison recommended cleaning procedure.

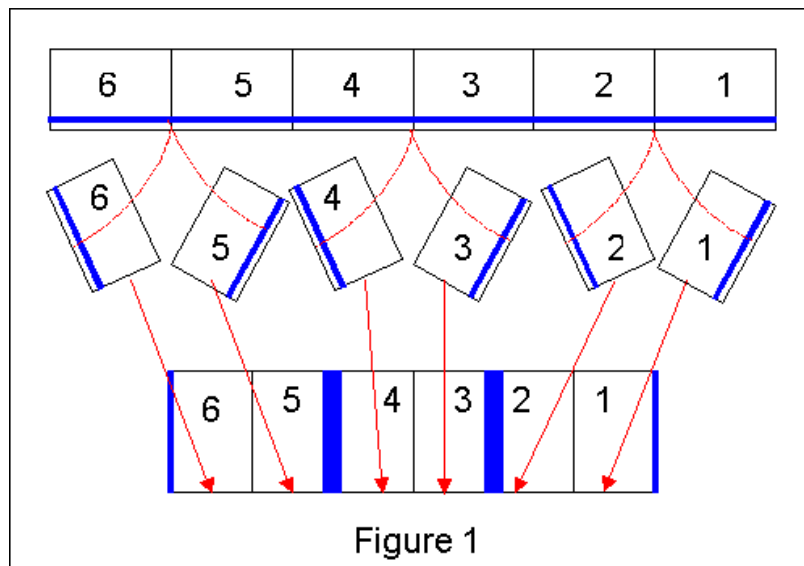
- Wash surface with detergent and water, then rinse with clean water.
- Wipe dry with a lint free cloth.
- Saturate clean lint free paper towel with IPA and wipe small area 1 yard (1 sq. m).
- Dry the surface with lint free paper towel **BEFORE** the solvent evaporates.

7.0 Film Applied Over Film (Other than Overlaps)

NEW: Translucent film may be applied over other recently applied translucent film using the application technique described in this bulletin.

OLD: New translucent film may be applied over weathered film which is in good condition and cleaned as described in the Section 7.0 Surface Preparation.

NOTE: In general, translucent film from a roll can be matched as shown in Figure 1. The dark line represents one edge of the film.



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8.0 Premasked (Application Tape) Film

Generally, film applied using the detergent and water method does not need to be premasked. If premasking is desired or the application is to be made without detergent and water be sure to use appropriate application tape.

9.0 Registration Marks

As an aid for aligning and registering markings on surfaces prior to application, registry marks may be made on top or side edge with a lead pencil, marking pen, or small pieces of masking tape.

CAUTION: Do not use chalk lines or grease pencils.

10.0 Application Procedure

- Make sure the surface and surrounding area are properly cleaned.
- Air and surface temperatures must be in range specified.
- These films are usually applied with the described detergent and water method. (Other application techniques will cause dark marks, which will become visible in transmitted light).
NOTE: Please refer to Instructional Bulletin #5.42 Section 2 for recommended application fluids.
- Firm pressure on the plastic applicator is necessary.
- Always use good quality squeegee, the edge must be smooth and not nicked.
- Use overlapping strokes when applying markings.
- Always remove premask at a 180° angle (if premask is used).
- Film must be re-squeegeed after 24 hours to insure complete adhesion. The use of a low friction sleeve (or equivalent) is necessary to prevent scratching.
- Puncture air bubbles with a pin (do NOT use a knife or razor).
- Exposure of newly fabricated sign faces to direct sunlight is not recommended for at least 24 hours.

11.0 Application Sequence

NOTE: Please refer to section 11.1 for recommended application fluids or follow instructions below.

1. Mix one teaspoon (6ml) of mild liquid detergent (do NOT use soap; avoid the use of enzyme detergents) in one gallon (3.8 l) of cool water to make necessary wetting solution.
2. Begin liner removal at a corner holding the film face down on a clean surface completely remove the liner.
3. Flood exposed (adhesive) side of film with wetting solution. (To apply small pieces of film, a spray bottle containing the wetting solution may be used to wet the surface). Large pieces of film may be flooded with the wetting solution using a solution soaked clean cloth.
Note: Avoid wetting pre-spaced markings on the non-adhesive side of the pre-spacing tape when applying the wetting solution. Moisture will be quickly absorbed into the paper tape causing wrinkling of the weeded areas making application difficult.
4. Thoroughly flood application surface with wetting solution.
5. Position the film with the wet adhesive (Step 3) against the wet application surface (Step 4), and if the film is not premasked, spray the wetting solution on the top surface.

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6. Using light, overlapping applicator strokes to smooth out the wrinkles. Squeegee from center to edges. A large window squeegee may be used to remove the water solution.
 NOTE: An applicator squeegee, not a window squeegee, must be used in Step 7 and all other steps where an applicator is mentioned.
7. Use firm, overlapping applicator strokes to adhere film to substrate. Squeegee from center to outside edges. Dry with a clean cloth or soft paper towel, then resqueegee edges. (If film is premasked, continue with Step 8, if NOT premasked, go to Step 10).
8. When film is premasked, it is recommended that you wait 15-20 minutes before removing the premask. To remove premask, begin at a corner and carefully pull it away from the film at a 180° angle.
 NOTE: If film separated from substrate, stop premask removal, re-squeegee entire graphic, wait an additional 30 minutes.
9. After removing the premask, re-squeegee all edges. To remove entrapped bubbles, puncture the film at one end of the bubble with a pin or other sharp round pointed tool (do NOT use a knife or razor), and press out the entrapped air or wetting solution with the thumb moving toward the puncture.
10. To complete the application, the film and edges MUST be re-squeegeed after 24 hours.

11.1 Recommended Application Fluids

Avery Dennison approved pre-formulated application fluid or wetting agent can be purchased from the following sources:

Graphic Adhesive Products (GAP)

Product: AF 908
 Phone: (818) 771-0500
 Fax: (818) 771-1026 2.5.2

Rapid Tac Co.

Product: Rapid Tac
 Phone: (541) 474-1113
 Fax: (514) 474-9447

Application fluids can also be mixed using the following methods:

- Soap & Water Solution – one teaspoon (6 ml) of mild liquid detergent into one gallon (3.5 liters) of cool water.
 CAUTION: Do not use soap, the use of any detergent, which contains fragrance, or hand creams is not recommended. Inappropriate detergents may result in application problems.
- Alcohol & Water Solution –25% isopropyl (rubbing) alcohol with 75% water

12.0 Film Overlaps

12.1 Tools/Materials Needed for Overlaps

- 2.0 in. (5.0 cm) wide masking tape.
- A cutting strip made from sheet metal (or scrap plastic) 16 to 18 gauge (0.050 in. to 0.062 in. or 1.3 mm to 1.6 mm) by 1 in. to 1.5 in. (25 mm to 38 mm) wide by the length of the seam.
- Sharp knife or razor blade.

When it is necessary to join pieces of film, rather than using a butt joint (which can leave a light leak), it is recommended that the film pieces be overlapped about 0.03 in. (0.8 mm) (which will leave a dark line when viewed at a short distance). To achieve this 0.03 in. (0.8 mm) overlap, use the following procedure:

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1. Determine where the film overlap is to occur. Lay cutting strip on the sign surface at this location. Tape cutting strip to sign surface with 2.0 in. (5.0 cm) masking tape.
NOTE: The cutting strip thickness determines the width of the overlap. For example, a 16 gauge thick cutting strip should yield about a 0.03 in. (0.8 mm) thick seam. (If you prefer a thinner overlap seam, use a thinner cutting strip, and use a thicker cutting strip for a wider seam). However, it is recommended that a minimum overlap of not less than 0.02 in. (0.5 mm) be maintained to prevent potential light leaks as the sign weathers.
2. Apply the first (base) piece of film making sure that it overlaps the cutting strip. Apply using techniques shown in application instructions. (If film pieces are premasked, remove premask in the overlap area prior to seaming).
3. Apply second piece of film (make sure that it is long enough to overlap the width of the cutting strip), then overlap the base film with the second piece.
4. Using a sharp knife or razor, cut along the entire length of the overlap through both layers of film. The use of a straight edge is recommended.
5. Remove top film weed, and then fold back overlapped film so that underneath film weed can be removed.
6. Remove the taped down cutting strip and spray with application fluid where the cutting strip was positioned.
7. Squeegee the first piece of film onto the sign surface and then the second. An overlapped seam will be created.
8. Resqueegee after 24 hours.

13.0 Cutting and Weeding

NOTE: It is recommended that cutting and weeding of graphics be done prior to application to prevent possible damage to the substrate. If cutting is done after application, exercise caution to prevent the cutting of the substrates.

1. Cutting may be done with conventional “graphic” knives, either fixed or swivel, or with a sharp razor blade.
2. Patterns may be pounced on to applied films using chalk or carbon dust. (Some carbon papers and some marking pens may permanently mark the film so check suitability before using).
3. Avoid or minimize over-cuts to eliminate or reduce light leaks.
4. Weeding may best be done by carefully holding a corner of the “weed” and removing it by pulling with sharp, short jerks at a 90° angle. Any adhesive residue left on the substrate may be removed by rubbing with thumb or finger.
5. If the graphic (film) is to go up to the edge of the substrate, the fabricator should consider the film thickness (.003 in to .004 in. [.08 to 0.1mm]) to determine if it will interfere with the clamping hardware.

14.0 Please Observe the Following Notes and Cautions!

1. When fabricating signs with this film, keep in mind that constant rubbing against the film by retainers or other parts of the sign body may tear the film, possibly causing light leaks.
2. Avery Dennison translucent film may be applied to substrate either untensioned and laying flat on a table or it may be applied after the substrate has been installed and tensioned in the sign cabinet.
NOTE: If applied prior to tensioning, caution should be taken during tensioning to prevent overstressing or cracking the film.
3. Application of Avery Dennison™ translucent film to a flexible-faced signage material (other than noted substrates) is not warranted. For a list of recommended flexible-face substrates, see Section 3.0 of this bulletin.

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4. When Avery Dennison™ translucent films are used on approved substrate; neither the film nor substrate should be over sprayed with spray paint.
5. It is generally recommended that if graphics are to come near the outside edge of the substrate, those graphics should, if possible, be applied to a tensioned face to prevent “scalloping.”

NOTE: Scalloping is normally visible only with lines running in the same direction as the edge of the sign and within about 12 in. (30 cm) of the visible opening.

Revisions have been italicized.

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