

## Application Instructions for Avery Dennison® 5100 Diffuser Films and Avery Dennison® 5300 Blockout Films on Flat and Rigid Surfaces

### Introduction

Avery Dennison 5100 Diffuser Films are premium quality cast vinyl films designed for use as a light diffuser. Avery Dennison 5100 Diffuser Films applied onto flexible and rigid substrates balance the light distribution of a backlit sign and eliminate the issue of hot spots. Avery Dennison 5300 Blockout Films are premium quality cast films which are especially designed for graphics involving internally illuminated light box applications.

Avery Dennison 5300 Blockout Films are designed to provide complete light blocking characteristics. Avery Dennison 5301 Blockout Film exhibits a uniformly luster white finish and is uniformly black on the adhesive side. Avery Dennison 5303 Blockout Film has a black luster finish and is uniformly white on the adhesive side.

### Application instruction

#### 1. Substrate preparation

All surfaces must be prepared and cleaned prior to the application of film. See Technical Bulletin 1.1, Cleaning and Preparation of Application Substrates for Avery Dennison recommended procedure.

#### 2. Product preparation

Avery Dennison 5100 Diffuser Films should be prepared and converted according to the converter's own standard practices and procedures or consult the Avery Dennison Technical Bulletin 3.1, Signcutting of Avery Dennison® Films, for further instruction.

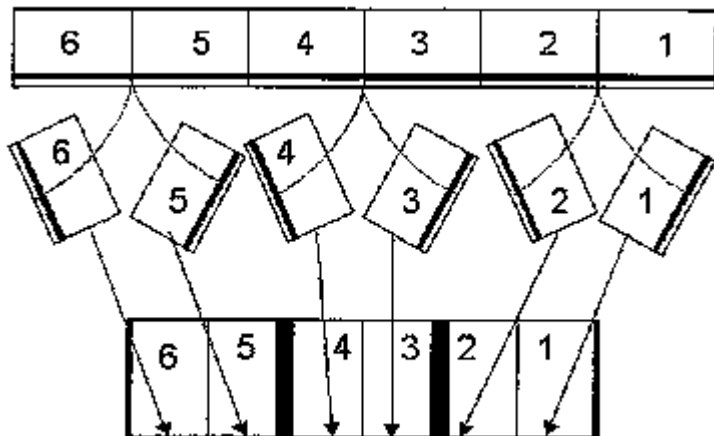
Convert the Avery Dennison 5300 Blockout Film with a signcutting system according to the converter's own standard practices and procedures or consult the Avery Dennison Technical Bulletin 3.1, Signcutting of Avery Dennison® Films, for further instruction.

It is recommended that cutting and weeding of graphics be done prior to the application to the substrate. If cutting is done after application, exercise caution to prevent the cutting of the substrate's surface. If weeding is done after application and cutting on the substrate, be aware that removal of the film might leave some adhesive residue on the surface. See Avery Dennison Technical Bulletin 1.2 : Removal of Self-adhesive Films for further instruction.

Generally, films applied using the detergent and water ( wet method ) do not need to be premasked. If premasking is desired or the application is to be made without detergent and water, be sure to use an appropriate application tape. Avery Dennison Technical Bulletin 1.4, Application Instructions for Avery Dennison Self-adhesive Films contain the necessary information.

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When more than two pieces of Avery Dennison Translucent Films or Avery Dennison Diffuser films are joined together to form a continuous surface a certain sequence of handling should be followed. This is a quite common practice in the sign industry and illustrated below.



The dark line represents one edge of the film.

#### Application procedure

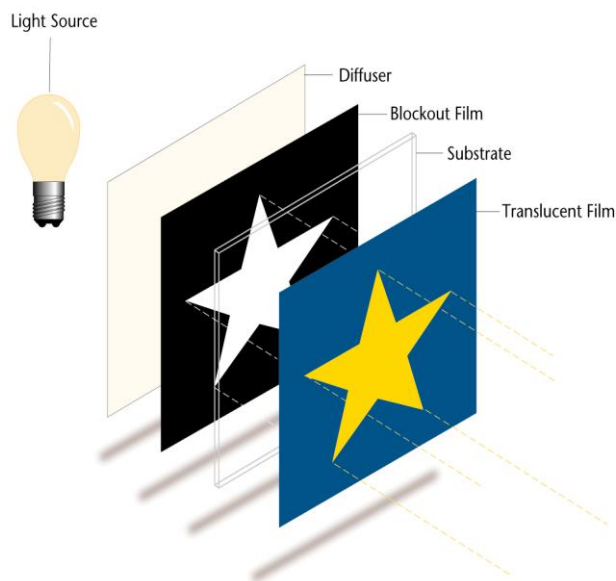
- Make sure the surface and surroundings are properly cleaned.
- Air and surface temperatures must be in the specified range (see Technical Information sheet of Avery Dennison 5100 Diffuser Films and 5300 Blockout Films).
- Films are usually applied with the detergent and water (see Technical Bulletin 1.4).
- Firm pressure on the plastic squeegee is necessary
- Always use a squeegee of good quality, the edge must be smooth and not nicked.
- Use overlapping strokes when applying markings.
- If premask is used, always remove premask at a 180° angle.
- Puncture air bubbles with a pin ( do NOT use a knife or razor blade )
- Repeat the above described procedure if more than one layer of film, graphic or marking is applied. The individual given time intervals should be respected after the application of each layer.
- Exposure of newly fabricated signs to direct sunlight is not recommended for at least 24 hours.

#### Application sequence

Since many different models of sign faces exist and further develop at a constant rate, one basic design concept will be used as an example.

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### Backlit sign example



#### **Step 1** (second surface application):

- Position the cleaned substrate on a sturdy support or work table
- Prepare for the wet application method as described before in the text.
- Apply the converted Avery Dennison 5300 Blockout Film onto the substrate in the following order:
  - Position the blockout film.
  - Use light, overlapping squeegee strokes to smooth out the wrinkles
  - Squeegee from the center to the nearest edges.
  - Remove the excess of water.
- Now, use firm and overlapping applicator strokes to adhere the film to the substrate.
- Dry with a clean cloth or soft paper towel, then re-squeegee edges.
- When application tape is used, it is recommended that you wait 15-20 minutes before its removal. Begin at a corner and carefully pull it away from the film at a 180° angle.
- If film separates from the substrate, stop tape removal, re-squeegee entire graphic and wait an additional 30 minutes.

#### **Step 2** (second surface application):

- Apply the prepared Avery Dennison 5100 Diffuser Film onto the blockout film according to the same procedure and sequence as described above.
- Carefully remove all the fluid from under the surface.
- Dry the surface thoroughly.
- Eventually, work on entrapped water or air with a pin tool until fully removed.

#### **Step 3** (first surface application):

- Apply and position the converted 4500 TF or 5500 QM Translucent Films to the substrate.
- Use light, overlapping applicator strokes to smooth out the wrinkles.
- Squeegee from the center to the edges.
- Remove the excess of water with a clean cloth or soft paper towel.
- Re-squeegee the film and all edges.

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### General information:

#### Avery Dennison 5300 Blockout Film:

- The choice of using the black or white side of the blockout film as second surface application, depends entirely on the color of the final image.
- Black will make the color deeper, while white will enhance the color. Therefore the side choice depends fully on the design of backlit sign image and should be determined by the design engineer.
- Note: the functionality of the blockout film, being to control the total light blockout or 0% light transmission, is not influenced by the choice of the side.

#### Avery Dennison 5100 Diffuser Film:

- The choice of the use of 5130 or 5160 is a design issue only.
- Shadow effects may be created by small differences in dimension during the cutting process and the precise positioning of the graphic.

#### Avery Dennison 5100 Diffuser Films and Avery Dennison 5300 Blockout Films:

- In general these films are used as secondary surface application films. If during the design phase of the sign one of the films is to be used as first surface film one should notice that the guaranteed life time of the films is slightly reduced compared to the guaranteed life time of the 4500 TF and 5500 QM Translucent Film series.
- The sequence of the application of the films (5100, 5300, 4500 or 5500 series) is entirely up to the designer of the sign. The films are technically fully compatible, thus one can design with the white side of the blockout film to the face of the sign, or the inverse, as well as any of the products of the 4500 TF and 5500 QM Translucent Film series.
- Furthermore, all films can be projected behind a transparent substrate guaranteeing optimal weathering resistance. However one should bear in mind that in the case of the 4500 TF and 5500 QM Translucent Films the specified side for surface finish is the topside of the product, not the adhesive side.
- Any questions related to technical issues during the design stage of the sign can be directed to the Technical Marketing Department. Please call (+31) 713421500 and ask the operator for the technical marketing manager or contact your local Avery Dennison sales representative for further assistance.

#### Substrate influence:

- Some of the rigid substrates used in the signage industry are : Glass, PMMA (polymethylacrylate ), PC ( polycarbonate ) and several products of this kind with special topcoatings for UV or scratch resistance improvement, usually sold under specific and mainly patented trade names.
- The supplier of the substrate should provide the appropriate cleaning or pre-treatment instructions and further technical data related to the product.
- In case a substrate is used of which it is known or suspected, that it has the property of outgassing, than the product should be thoroughly tested and evaluated prior to any production. Avery Dennison recommend the converter to test the substrate with the applied self-adhesive film or multiple layer of films, if applicable, at elevated temperatures and increased humidity levels.

Careful observation and analysis of the film(s) after the test cycle has been completed is an absolute necessity.