

Avery Dennison® Instructional Bulletin 1.18

Conversion and Application of SP 1504 Easy Apply™ RS for Vehicle Wrapping

Revision 0

General Information

Avery Dennison® SP 1504 Easy Apply™ RS is a PVC free vehicle wrapping film when paired with compatible PVC free DOL 6460 High Gloss laminate film. As part of our Sustainable print portfolio, it will allow you to complete vehicle and fleet applications including, but not limited to bumpers, mirrors and 3D concave recesses.

This Instructional Bulletin outlines the parameters to be used when printing, laminating, applying, as well as the care and maintenance after application.

Avery Dennison Sustainable Print PVC-free films provide an alternative solution to cast PVC films, and behave slightly different.

It is very important to follow these application guidelines to achieve a successful application result.

General Considerations

Before application of Avery Dennison® SP 1504 Easy Apply™ RS Film can be attempted, there are certain important considerations that need to be addressed.

Important Note: SP 1504 Easy Apply™ RS is a PVC free wrapping film and designed to be paired with DOL 6460 High Gloss overlaminate which is also PVC free.

SP 1504 Easy Apply™ RS can however also be used with any of the below Avery Dennison® High Performance Cast Laminates - DOL 1460z, DOL 1480z and DOL 1060z.

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro) directly on the surface of DOL 6460 High Gloss laminates when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. If necessary during application, use a soap and water solution in conjunction with the application glove to further reduce friction. For solvent and chemical compatibility, please review **Table 1.1**

Important Note: Avoid storing material laminated with DOL 6460 face-to-face, due to the unique nature of the DOL 6460, the film can bond to itself and may not separate.

Important Note: Where deep recesses and corrugations have a high level of stretch or have three or more consecutive recesses, this can result in the reduction of functional adhesion with the potential of lifting from the recesses. The use of higher heat and higher application glove pressure during installation into these recesses can assist to overcome this, but can't be assured.

Printing of SP 1504 Easy Apply™ RS

- Limit the total amount of ink as much as possible when printing using the correct ICC colour profile and RIP colour settings to avoid excessive solvent build up and retention in the film, we recommend a maximum of 270%.
- You can download the SP 1504 Easy Apply™ RS ICC Profile from avery-ap.color-base.com, providing your printer and RIP combination has been ICC profiled and created. You can further enhance the colour reproduction by linearising the provided profile using a spectrophotometer.



Drying and Curing

- When printing SP 1504 Easy Apply™ RS, the following proper drying and curing times need to be observed to preserve the performance of the film and adhesive:
- For conversion using solvent and eco-solvent inks, a minimum curing time of 24-48 hours for flat applications and 72 hours for conforming and fleet applications is required, before overlaminating.
- Dry immediately after printing by hanging prints vertically to allow solvents to “fall” out of film.
- Drying/curing time will vary depending on location and environmental conditions. If a strong solvent scent is present, or the film is softer than usual the drying process is not complete.
- For conversion using Latex inks, ensure the correct curing settings are used, by checking the printed image for signs of ink rewetting. If there are signs of ink rewetting shortly after printing, try increasing the curing temperature until no longer present. Once the correct drying and curing setting are used, no further curing after printing is required before laminating.

Note: Please read Instructional Bulletin 4.14 in conjunction with this bulletin for proper processing of Digital Inkjet printed graphics ie. Solvent, Latex etc.

Lamination

- After printing the film is recommended to be overlaminated. Please refer to Avery Dennison Instructional Bulletin 4.06 - Processing Tips for Laminating Films (DOL) .
- **Note: DOL 6460 is extremely flexible. It is very important to monitor temperature and tension;**
- Heat used during lamination could easily allow the film to be stretched. “Brake” or resistance on the roll of laminate when unwinding in the laminator could also cause the film to elongate. Increased temperature and/or higher winding tension could lead to unwanted elongation of the overlaminate when laminated onto the print film, potentially causing defects after the combination has been applied to a substrate. Therefore temperature and winding temperature should both be kept at an appropriate (low) level, ideal conversion temperature is at room temperature of approximately 21°C.

Substrate Preparation and Cleaning

- A clean, dry application surface in good condition is absolutely necessary to ensure the proper bonding of an adhesive to the substrate. Refer to Avery Dennison Instructional Bulletins 1.01 Substrate Cleaning and Preparation, and 1.4 Application Methods for specific technical recommendations.

Note: Some new vehicles, especially vans may have co-polymer paint protection coatings. These coatings make it difficult for pressure-sensitive adhesive films to achieve a functional bond. You should check with the vehicle manufacturer first, but it has been recommended to pre-clean with Autoglym Multiwash TFR (previously Power Max 3). Ensure you follow the manufacturer's instructions: For removal of co-polymer paint protection coatings, a solution of 1 part Autoglym Multiwash TFR, to 4 parts clean water is used in a spray bottle. Spray solution evenly on all areas of the vehicle (especially deep recess and 3D sections) agitate with a sponge, allow 5 min reaction time and do not allow to dry. If it dries, re-apply and re-work with sponge, then rinse systematically with high-pressure water, preferably hot, removing all of the solution.

Substrate Preparation and Cleaning

Note: Vehicle surface must be new OEM paint/finish in good sound condition, free of oxidation and must be cleaned thoroughly to remove all dirt, grime, grease, oil, wax, polish, copolymer or ceramic coatings and other contaminants. For ceramic coatings, review with the manufacturer on the best process for removal

Pre Cleaning Wash

- Remove all dirt and grime with water and detergent solution
- Remove any co-polymer paint protection coatings with the use of Autoglym Multiwash, as per manufacturer instructions
- Do not use any polishes, waxes or tyre shining agents post wash
- Allow the vehicle to dry ensuring no water remains in areas such as seals and behind door handles. A compressed air gun can be used to aid in drying hard to get to areas
- For any hard to remove grease, oil and wax, use a rag soaked in solvent, such as Isopropyl Alcohol (IPA), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro

Note: The surface must be completely clean, smooth, and dry before final preparation.

Caution: Prior to cleaning with solvents, test the solvent on an inconspicuous area of the surface to check for potential damage from solvent usage.

Final Surface Cleaning and Preparation

- After following the pre cleaning instructions above, the substrate should be thoroughly cleaned with Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro.
- Spray Avery Dennison Surface Cleaner/Surface Prep Pro onto the substrate and allow it to dwell, remove using a clean, soft, lint-free cloth, remembering to rotate the cloth for each new area you clean.

or alternatively

- The substrate can be cleaned with an IPA and water solution (70% IPA and 30% water), using a lint free cloth or microfiber towel soaked with the solution and then wiped off with a clean dry lint free cloth or microfiber towel, before the solution has time to evaporate, remembering to rotate the cloth for each new area you clean.
- Take special care with recesses, corners, returns of panels, behind rubbers (e.g. inside edge of door) and any hard to reach areas
- It may be necessary to clean some areas more than once until the desired result is achieved

Final Check

- Check all critical areas using the 'nail test'. Feel the surface with the back of your fingernail. If the surface feels slippery and your nail slides easily, then it should be cleaned again. If it is difficult to slide your nail across the surface and it grips heavily, then the surface is clean.

Important Note: There must be no dirt, grime, grease, oil, wax, polish, copolymer or ceramic coatings or solvent residue remaining on the substrate prior to application.

Application Temperature & Environment

- Application temperature is one of the most critical factors in film application.
- Lower temperatures restrict good adhesion properties, which increase the risk of a graphic failure due to low levels of adhesion.
- Higher heat and humidity conditions may also make a graphic more difficult to reposition once it has made contact with the application surface. As the ambient or the application surface temperature exceeds our recommended maximum 25°C, Avery Dennison® Easy Apply™ RS installation performance may be limited, especially at temperatures above 30°C.

Important Note: For SP 1504 Easy Apply™ RS the substrate, ambient temperature and film have a recommended minimum application temperature of 16°C. For optimal application performance and ease-of-use characteristics an ideal temperature range of 16°C to 25 °C is recommended

Note: For all products be sure to read the appropriate product data sheet for details about minimum and maximum application temperatures, recommended substrates, and immediate service conditions before and after application.

Traditional Application Tools

Note: SP 1504 Easy Apply™ RS and DOL 6460 High Gloss films can be applied using traditional tools and techniques.

Note: Due to the increased thickness, durability and higher scratch resistance of DOL 6460 High Gloss, you will need to ensure a fresh blade is used when trimming the combined films, frequently snapping your blade will result in optimum trimming and quality finishing.

- Squeegee Pro (Blue), Squeegee Pro Flexible (Red) or Squeegee Pro Rigid (White)
- Flextreme Squeegee
- Application Glove
- Heat gun
- Knife – With 30° or 45° blades, for optimum cutting, ultra sharp blades are recommended
- Snitty
- Rivet Brush
- Air Release Tool
- Masking Tape
- Avery Dennison Magnets
- IR Laser Temp
- Measuring Tape
- Wax/Chinagraph, water based Pencil (chalk like marking pencil is strongly not recommended)

Application and Installation

The following important points should be adhered to when applying SP 1504 Easy Apply™ RS and DOL 6460 High Gloss:

- When using a heat gun to soften the film, an ideal temperature of 35-45°C is required for best results.
- Do not exceed temperatures of 70°C with the free unapplied film due to the possibility of the face film making contact and bonding
- A soap and water solution should be used in conjunction with an application glove for application into deep recesses in order to reduce friction and unwanted wrinkles or creases.

Application and Installation

Important Note: Avery Dennison vehicle wrapping films, including but not limited to: SP 1504 Easy Apply™ RS, do not require the use of adhesive promoter or primer in order to achieve suitable adhesion levels in areas such as compound curves, corrugations or recesses*. When properly processed and applied in accordance with Avery Dennison's recommendations in this Instructional Bulletin, these products will remain adhered and free from lifting or popping for the intended life of the film.

Important Note: The use of adhesive promoters or primer will invalidate any warranty statements made in accordance with the ICS Warranty Program.

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro directly on the surface of DOL 6460 High Gloss laminates when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. If necessary during application, use a soap and water solution in conjunction with the application glove to further reduce friction. For solvent and chemical compatibility, please review Table 1.1

- Ensure that the application surface is clean and dry before application of any graphic film. Refer to Instructional Bulletin 1.01 before application of any graphic.
- Ensure application is done in a clean, dry and enclosed location free from dust and possible causes for contamination.
- NO Application Tape is required for the application
- Must be applied dry. Do not use water when applying.
- Be sure the environment, film and substrate are within the temperature range recommended for the film (16-25°C).
- Experiment to find the correct tools and techniques that work best before applying large graphics. Easy Apply™ RS Series films are designed to work with a variety of tools and techniques. Regardless of the tools or technique, it is important to use enough pressure to make sure the graphic firmly adheres to the substrate, approx 5-7kg.

Note: Pre-masked graphic requires additional pressure.

- Try and keep stretching to an absolute minimum.
- A maximum stretch of 130% should not be exceeded, for most wrapping applications 115-120% is within the normal capability of the film.
- When stretching or conforming the material in convex, concave and compound shaped surfaces, please ensure that you distribute the stretch over a greater amount of material. This limits the stretch in any one area and reduces the stress imparted on the film.

Note: When stretching and conforming to single or multiple deep recesses or corrugations, such as those found on commercial vans. In order to distribute the stretch over a greater amount of material. After bridging over the outer flat region, heat the free film with a heat to to between 35-50°C. Then apply all recess first while still warm with the use of Avery Dennison Application Glove soaked with a soap and water solution, to further reduce friction, followed by inner flat regions last. This will prevent popping from recess, ensuring that post heating occurs as outlined later in this IB.

***Important Note:** Where deep recesses and corrugations have a high level of stretch or have three or more consecutive recesses, this can result in the reduction of functional adhesion with the potential of lifting from the recesses. The use of higher heat and higher application glove pressure during installation into these recesses can assist to overcome this, but can't be assured..

Application and Installation

- When applying multiple overlapping panels, start from the back and work forward or the bottom and work up.
- Use firm, uniform strokes, and overlap all strokes by about 50%.
- Hold the squeegee at a 50-70 degree angle to the surface. A flatter angle will reduce distortion of the film during application
- Locate where to position graphics and mark the spot using small pieces of masking tape, water based pencil or magnets.
- If the graphic is large, tape or magnet it into position securely and use the hinge method illustrated in Instruction Bulletin 1.4.
Note: To avoid marks in the film, be careful not to place the magnet within area to be applied.
- If the graphic is less than 1m², remove the entire liner. Position the graphic on the marked points using light tacking pressure similar to other Avery Dennison materials.
- Squeegee the film using moderately firm, overlapping strokes, making sure the applicator is flat with the substrate along the entire length of the stroke.
- Re-positioning of the film is only possible at the stage of positioning and low squeegee pressure. If done at a later stage small marks or defects might remain visible in the film surface.
- In order to further facilitate the ease-of-application heat can be applied to the film. Naturally the level of applied heat will depend on the ambient temperature of the area where the application is going to be conducted. In areas with temperatures below 20°C, more heat will be required for easy application. However, when ambient temperatures exceed 30°C the use of an external heating source may not be required or may be reduced to a certain extent.
- Whenever handling the adhesive make sure your hands are clean, and the adhesive does not touch anything else besides the clean substrate.
- Remove air bubbles and tenting around rivets by using an air release tool and heat. Do not use a knife or blade. This must be done before post heating to avoid entrapped air expanding and damaging the graphic.
- Trim all excess material using a 30° knife blade taking care not to cut the substrate.
- Ensure all edges where the graphic finishes are applied firmly.

Final Squeegee Pass

Note: This is a key final step and will help prevent premature graphic failure due to edge lifting.

- Wait at least 15–20 minutes after the application for initial adhesion to build.
- Re-squeegee all graphic edges, overlaps and seams using firm pressure. Use a squeegee with a new felt buffer to prevent scratching or damage to the decal.
- Re-squeegee is a must on ALL edges of the decal.
- The additional use of a light heat with a heat gun will also identify any regions missed or with insufficient squeegee application pressure, enabling firm re-squeegee application to achieve a functional bond.

Finishing and Post Heating

Important Note: SP 1504 Easy Apply™ RS and DOL 6460 High Gloss requires a recommended minimum post heating temperature of 90°C.

Once application has been completed, all areas where the film has been stretched require post-heating.

- Post heating should be done no sooner than 30-45 minutes after application.
- With the use of a heat gun on a high setting and a digital thermometer (Laser temp), apply heat until the conformed area of the graphic reaches a measured 90°C for DOL 6460 High Gloss laminate.
- Post heating must be done the same day as the application.

Cleaning and Maintenance

For detailed information on cleaning and maintenance please refer to Avery Dennison Instructional Bulletin 1.8 Vehicle Wrap and Graphics Maintenance.

Important Note: As with all graphic films, it is important to avoid using any hard solvents (i.e. IPA (Isopropyl Alcohol), Avery Dennison Surface Cleaner or Avery Dennison Surface Prep Pro) directly on the DOL 6460 High Gloss laminates when cleaning or during the application process. Use of these products directly on the surface may cause matting and loss of gloss. If necessary when cleaning use a damp microfiber towel, or Avery Dennison Supreme Wrap Care Cleaner to remove any light marks or contaminants.

Avery Dennison has tested a broad range of commercially available truck and car wash products for compatibility with the DOL 6460 High Gloss. All tests were conducted at 100% concentration and immersed for up to 24 hours, as opposed to the recommended range of 0.005 - 20% concentration, using recommended washing techniques and times.

For truck and car wash compatibility, please review **Table 1.2**

For the removal of adhesive residue from the surface of DOL 6460 High Gloss laminates, we recommend using the following solvents for the best result: Wax and Grease Remover (Diggers/Septone), White Spirits or Shellite. To remove adhesive residue, simply apply a small amount of the recommended solvent to a microfiber towel and wipe until the adhesive become loose and can easily be removed, avoid using high pressure and abrading the film.

For solvent and chemical compatibility, please review **Table 1.1**

Table 1.1– Solvent and
 Chemical Compatibility for
 DOL 6460 High Gloss
 Laminate

Overlaminates	DOL 6460 High Gloss 38 mic high gloss polyurethane
Cleaning Product	
The below products are recommended for use on the surface of Avery Dennison	
Supreme Wrap Care Cleaner - Avery Dennison	✓
Supreme Wrap Care Power Cleaner - Avery Dennison	✓
Supreme Wrap Care Sealant - Avery Dennison	✓
The below products are recommended for adhesive / contaminant removal on the surface of Avery Dennison DOL 6460 High Gloss film.	
De-Solv-it - RCR	✓
IPA - 25% Dilution with water	✓
Mineral Turpentine	✓
Shellite	✓
Wax & Grease Remover - Diggers / Septone	✓
White Spirits	✓
The below products are not recommended or compatible for use on the surface of Avery Dennison films	
Acetone	✗
Adhesive Remover - Avery Dennison	✗
IPA - 100%	✗
IPA - 50% Dilution with water	✗
Methylated Spirits	✗
Oomph - Pasco's	✗
Prep-Vinyl - Viponds	✗
Prep-sol	✗
Surface Cleaner/Surface Prep Pro - Avery Dennison	✗

Table 1.2 – Truck and Car Wash Compatibility for DOL 6460 High Gloss

Overlaminates	DOL 6460 High Gloss 38 mic high gloss polyurethane
Truck and Car Wash	✓
Aquawax - Hot Wax Rinse Aid - Autosmart	✓
Brushwash - Concentrated Foam Shampoo - Autosmart	✓
CT18 - Superwash - Chemtech	✓
CT20 - Wash 'N' Wax - Chemtech	✓
G101 - Multi Purpose Non Caustic Cleaner - Autosmart	✓
Heavy Duty Super Wash - SCA / Koala Auto Kare	✓
Heavy Duty Truck Wash - SCA / Koala Auto Kare	✓
JET MPC - Multi Purpose Non Caustic Cleaner - Autosmart	✓
Reaction - Truck, Bus & Car Wash - Batch	✓
Tiger Plus - Heavy Duty Vehicle Wash - Autosmart	✓
Tiger Wash - Truck Wash Concentrate - Autosmart	✓
Truck wash - Firefly	✓
Wash 'N' Glow - Concentrated Car Wash & Wax - Batch	✓

Removal of SP 1504 Easy Apply™ RS / DOL 6460 High Gloss

It is recommended to apply moderate heat (30-40°C) on a larger area by means of a hot air gun to the edge of the applied film. Ensure to start removing the film from the edge of the panel at an angle of 30° to 60° from the substrate, reducing the chance of adhesive residue. At this elevated temperature the film is more flexible, allowing for easier removal and has less impact on the substrate. Avoid snapping the film off. This could lead to breakage of the film and the laminate to separate from the printed film.

Always remove with two hands as this gives more control over the removal process.

Any leftover residue on the substrate after removal of the film may be removed with a cloth, soaked in Avery Dennison Adhesive Remover, or a mild solvent that won't damage the typical OEM Auto Application substrate.

Important Note: Removal of SP 1504 Easy Apply™ RS Film is only recommended when combined with DOL 6460 High Gloss overlaminates, within the warranted durability. Removal past the warranted durability, or after harsher exposure conditions, could well result in extended removal times with difficulty in film/adhesive removal. Please refer to the relevant ICS PG T&C's for more information.



Warranty and Limited Remedy

This instructional bulletin describes a technique. The information contained herein is believed to be reliable, but Avery Dennison makes no warranties, express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. To the extent allowed by law, Avery Dennison shall not be liable for any loss or damages, whether direct, indirect, special, incidental or consequential, in any way related to the technique of making a graphic regardless of the legal theory asserted.

The above information provides basic information on how to apply pressure-sensitive graphics. The instructions are designed to help ensure success across a broad range of applications. Depending on the size and complexity of applications, a certain amount of expertise is needed.

Professional applicators can be hired to ensure proper application of finished graphics. When mounting graphics in remote geographic areas, professional applicators can offer the added benefit of local service.

Avery Dennison has a vast network of Certified Installers who have been specially trained and certified in accordance with our recommended techniques.

You can review the Certified Installer list here: [Find a Graphics Installer](#)

Consider hiring a professional whenever the application requires:

- Multiple panels to be registered
- Complex surfaces, such as rivet and corrugated trucks
- Harsh environmental conditions (i.e. outdoor applications in high heat climates)
- Remote geographic locations

For further information, contact your local Avery Dennison representative.

