

PRODUCT BULLETIN

APPLICATION AND REMOVAL Polymeric Vinyl Film **SUPTAC S5000**

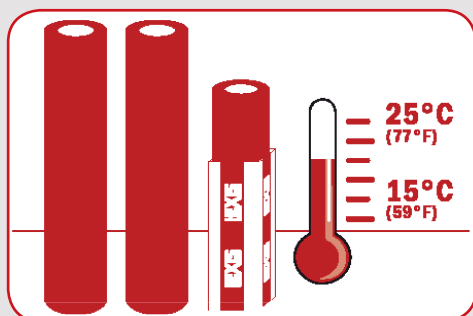
ESSENTIAL ACCESSORIES

- › Tesa® 7476 adhesive tape
- › Masking tape
- › HEXIS'O surface cleaning agent
- › CLEAN HEXIS degreaser
- › ND45 strong cleaner and degreaser
- › Assorted squeegees
- › PC30G2 cast laminate or V750 (flat surfaces)
- › VR 7077 edge sealing varnish
- › Electric heat gun
- › MALCOV HEXIS toolbox comprising:
 - › Laser thermometer
 - › Magnets
 - › Stanley measuring tape
 - › Craft knife
 - › Scalpel
 - › Ten 30° cutter blades
 - › Cotton gloves
 - › 10 scalpel blades
 - › Plastic squeegee
 - › A5 sheet size felt squeegee
- › DECOLL'VIT adhesive remover

ALWAYS STORE VINYL ROLLS AT THE RECOMMENDED CONDITIONS

Keep the film away from sources of heat (radiators, exposure to direct sunlight...): the ideal storage temperature is between 15 and 25°C (59 and 77°F). Store in an atmosphere with low humidity (30 to 70% relative humidity).

Keep your films in their original packing. Each opened roll must be stored vertically or suspended from the core in order to avoid pressure marks on the contact surface.



CHARACTERISTICS

This film is a 65µm (2.55mil) self-adhesive PVC renowned for its softness making it suitable for use on curved surfaces such as on vehicles, motorcycles, boats... It is dimensionally very stable and is specially designed to resist extreme temperature variations and hydrocarbons and to be applied to flat, slightly concave or convex and slightly undulated surfaces.

PREPARING YOUR APPLICATION SURFACE

You can apply your HEXIS films on a wide variety of substrates, under the condition that these application surfaces are clean, dry, smooth, non-porous and with no traces of oil, grease, wax, silicone or other contaminating agents. To avoid any bad surprises, always assume that these surfaces are contaminated and must be cleaned (cf. chapter 3). Do not forget to carry out a preliminary test on a small surface to check this substrate does not deteriorate.

SUMMARY

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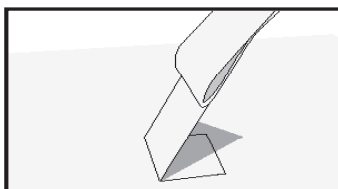
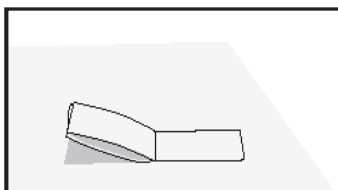
6. Sealing varnish

7. Cleaning and film maintenance

8. Removal procedure

1. RECOMMENDATIONS

- Avoid applying the adhesive film on ABS-type plastic parts in a full wrap.
- The best adhesion of the SUPTAC film is achieved after 24 hours of contact.



2. PRELIMINARY SURFACE TESTS

- Any fresh paint must be dried for at least 7 days at 25°C (77°F) to outgas completely. An outgassing test must be carried out before applying the film.
- Any old, dusty or flaky paint must be sanded down and restored before application and must undergo a tear off test.

2.1 Tear off test

With a TESA 7476 adhesive tape, or an equivalent, apply on an area of 2.5cm x 5cm (1in x 2in) plus some leftover space to allow for fingers to hold it. Fold and quickly pull off perpendicularly to the surface. No trace should remain on the removed adhesive. Repeat this operation in several places.

> On request, HEXIS can provide you with Tesa adhesive tape in 2.5cm x 5cm (1in x 2in).

2.2 Outgassing test

Use a square of around 15cm x 15cm (6in x 6in) of adhesive polyester or of the film to apply. Wait 24 hours or 2 hours at 65°C (149°F). If any bubbles appear, this means the surface has insufficiently outgassed. This operation can be repeated after several days, or carry out the operation below.

2.3 Outgassing procedure with flame treatment (polycarbonate, translucent or diffusing methacrylate, expanded PVC ...) consists of changing the surface tension of a substrate by swiping it with the flame of a gas burner. Have the flame swipe past quickly with a horizontal and vertical sweep along the whole substrate (use the flame's blue tip).

Careful: never leave the flame on a set point for more than one second (risks destroying the substrate). The film must be applied immediately as this light surface treatment disappears after a few minutes.

 HEXIS is not liable for any bubbles caused by outgassing.

3. CLEANING

Depending on the condition of the substrate, three cleaning possibilities are possible:

3.1 Clean surface appearance

Before applying the film on the substrate, we recommend you clean it with the gentle HEXIS'O solution. Dry with a clean and lint free cloth.

3.2 Soiled surface appearance

Clean the substrate with a cloth soaked in the CLEAN HEXIS degreasing agent and dry it with a cloth before evaporation.

If the substrate is stained due to resistant contaminating agents such as diesel oil, tar or rubber, use a cloth soaked in the powerful HEXIS ND 45 cleaning agent. If necessary, use a gentle, non-abrasive grater beforehand.

In all cases, the targeted areas must then be washed with HEXIS'O.

3.3 Special cases

Remember to adapt the preparation methods according to the substrate type and condition.

The painted surfaces must be dry and hard, and the baked paints must be cooled down. Air-dried paints or car paints need to be dried for 7 to 10 days before applying the film. For bare metallic surfaces, clean the substrate with soapy water and then with a cloth soaked in HEXIS'O solution.

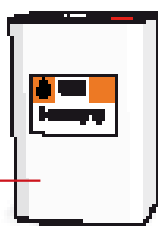
The type of film to be applied will define what sort of preparation methods to use (cf. technical data sheets available on www.hexisgroup.com).

4. CUTTING THE FILMS

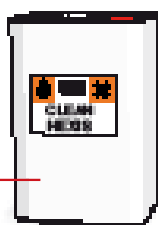
The films should preferably be stored in the same environment as the cutting area.

The blade pressure should be adjusted according to the film. The vinyl colour is given by the pigment load which may cause different degrees of difficulty when cutting. Thus a red vinyl following a white vinyl may need more pressure.

HEXIS'O
cleaner and
degreaser



CLEAN HEXIS
cleaner and
medium
degreaser



ND45
cleaner
and strong
degreaser



If there is too much pressure, the liner (silicone paper) may undergo a scarification into which the adhesive may seep which makes the weeding more difficult, or even delaminate the liner paper weakened in the cutting area. In all cases, it is preferable to weed immediately after cutting.

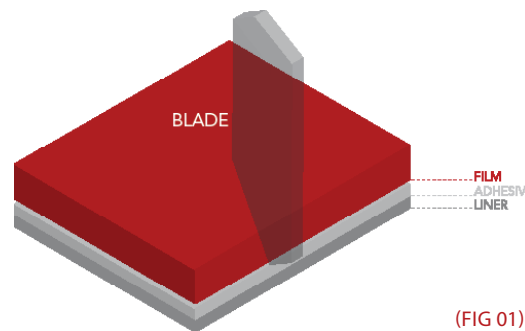
4.1 Cutting letters

The minimum height possible for cutting depends on the condition of the blade, the pressure and the speed. Generally the acceptable height is 10mm (0.4in), the descender line is 1.5mm with an average speed and a blade in good condition. Small characters may be obtained by reducing the speed.

The blade must cut the film and the adhesive surface. (FIG 01)

A blunt and used blade will affect the cutting quality and will require a stronger pressure. It will also be more difficult to weed.

> HEXIS offers a range of different blades in their catalogue.



(FIG 01)

4.2 Selecting the transfer film (tape):

The character sizes to transfer and the temperature conditions determine the selection of transfer papers and films. Small characters and low temperature call for a High Tack Tape. The application, with water or dry, and even the adhesive force desired of the Tape, will determine the selection of a particular adhesive type for the transfer. After weeding, the application of the Tape is followed by a vigorous pressing down with the help of squeegee (particularly on the small characters).

> HEXIS offers a range of transfer films and papers in their catalogue.

4.3 Transfer operation

In the case of small characters, it is preferable to turn both the paper/Tape (Tape underneath and liner above) over and to remove just the liner while holding the Tape horizontally.

5. APPLICATION OF THE GRAPHICS OR THE SUPTAC VINYL

Before any application of the SUPTAC film, make sure all the surfaces are clean (cf. paragraph 3) and pay particular attention to the critical areas such as the corners and edges.

The "dry" procedure allows to apply the SUPTAC film on complex surfaces: total wrapping, corrugated iron, riveted ...

The "wet" procedure is reserved exclusively for flat surfaces.

The ideal application temperature is between 15 and 25°C (59 and 77°F) and must be respected equally for both the ambient and the substrate temperatures.

The hygrometry may result in a less effective adhesion of the film on the substrate.

In a cold environment, the transfer tape must be left longer before being removed.

Several days are needed to finish the final adhesion of the vinyl.

5.1 Dry procedure

In all cases, the first steps of the vinyl application procedure are the same and work also for flat surfaces.

5.1.1 First steps and SUPTAC application on flat surfaces

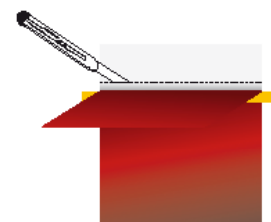
- > Wear gloves (available in toolbox)
- > Position the graphic on the surface (FIG 02).
- > With the help of masking tape or magnets, make a horizontal hinge on the top part, preferably on a flat surface (FIG 03).
- > Pull off 10cm (4in) of liner (FIG 04) and start sticking the vinyl with a squeegee (already covered with felt squeegee) making a 45° angle and applying from the centre to the edges (FIG 05).
- > Then take off the hinge to continue removing the liner, depending on the surfaces (cf. following paragraphs). (FIG 06)
- > When applying on flat surfaces, press down hard over the entire surface, not forgetting the edges.



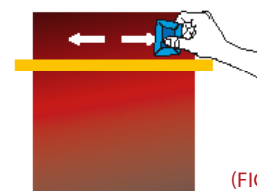
(FIG 02)



(FIG 03)



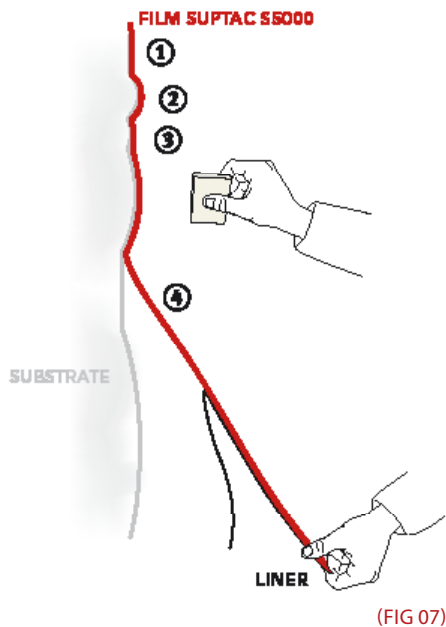
(FIG 04)



(FIG 05)



(FIG 06)



5.1.2 Slightly undulated surfaces

Having completed step 5.1.1, proceed as follows (FIG 07).

- Remove the liner gradually by tensioning it towards the lower end.
- Apply the film with the thumb or a squeegee horizontally progressing slowly into the hollow of the undulation.
- Apply the hollow ① then the peak ② and the hollow ③.
- Go up onto the next peak ④ and so on.
- As the film was not permanently stretched, it is not necessary to reheat the film.

5.1.3 Slightly concave surfaces

After 5.1.1, proceed as follows:

- Remove all the liner.
- Stretch the vinyl over the substrate so that the film touches the peaks only.
- Apply the film with a finger or a plastic squeegee covered with a felt sheet.
- If necessary, lift off again and re-stretch the film; then apply.
- Heat to between 40 and 50°C (104 and 122°F) and with a finger press down into the hollow area so as to apply the adhesive.
- When finished, reheat all hollow areas that have undergone strong stretching to between 80 and 90°C (176 and 194°F) in order to definitely thermoform the product.

If any areas turn out to be too concave we recommend you make appropriate cuts in the following way:

- Put on the glove and apply the outward curved areas (FIG 08).
- Cut one side of the concave area (FIG 09) (be careful not to scratch the substrate under the vinyl).
- Heat the hollow area to between 40 and 50°C (104 and 122°F) and move your finger over the vinyl and press it down (FIG 10).

Tip: If you want to avoid the substrate to be seen in areas where the film is cut (FIG 11) you can beforehand stick a piece of your vinyl into the concave area where you are going to cut the vinyl. Thus when you apply the film and cut it, through the superposition the substrate will no longer be visible.

- Once finished reheat all areas that have been formed to between 80 and 90°C (176 and 194°F).

- If the bubble should unfortunately remain, do not cut them but pierce them with a needle.

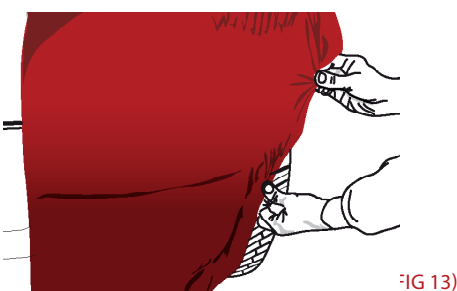
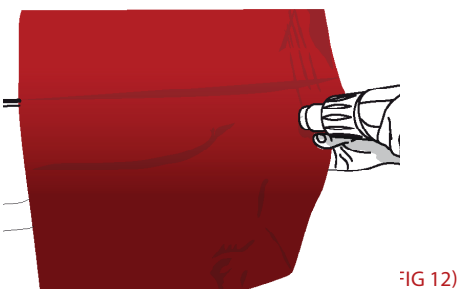
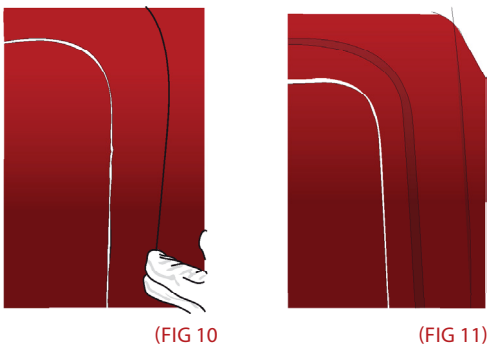
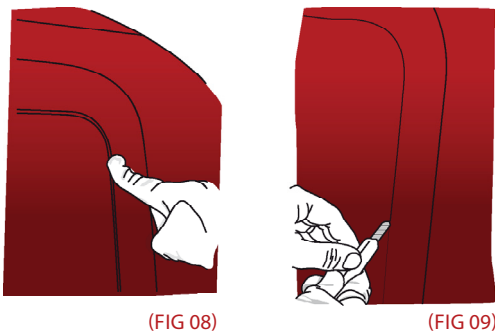
If the area is particularly visible and if you wish to achieve as good as perfect results we recommend the use of a cast film such as HX10000, which can be applied without cuts.

5.1.4 Slightly convex surfaces

After 5.1.1 proceed as follows:

- Remove the liner.
- Heat the vinyl to between 40°C and 50°C (104°F and 122°F) then stretch the film so as to completely wrap the convex surface.
- Apply the vinyl over the entire surface with the help of a plastic squeegee covered with a felt sheet and carefully wipe over the convex area to eliminate any tensions.
- If necessary, lift the film, re-stretch it and completely wrap the convex surface.
- Next heat to between 40°C and 50°C (104°F and 122°F) and squeegee down.
- Leave to cool down.
- Cut the film if necessary and reheat to 80-90°C (176-194°F) for optimum adhesion.
- The application is completed.

If any areas turn out to be too convex we recommend you make appropriate cuts in the following way (for example the lower part of a car bumper):

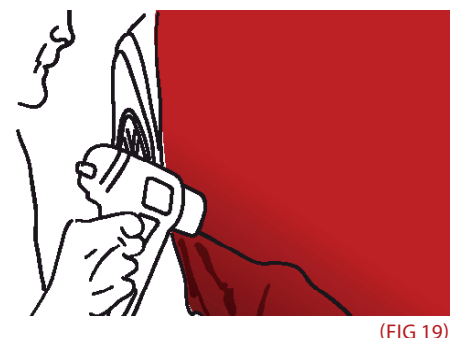
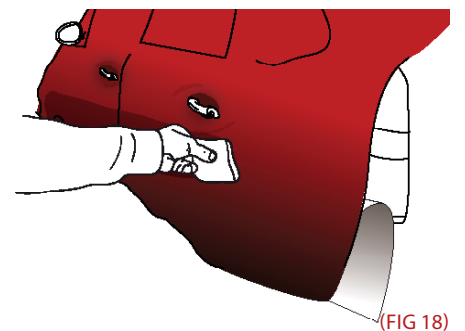
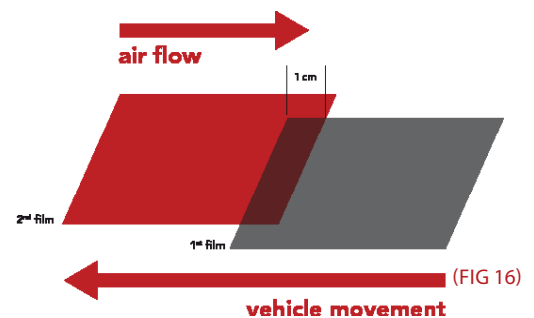
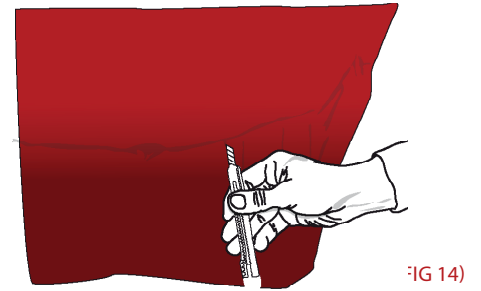


- Heat the vinyl to between 40°C and 50°C (104°F and 122°F) (FIG 12).
- Stretch the vinyl over the flat surface area (FIG 13).
- Cut narrow vertical stripes into the vinyl (FIG 14).
- With a squeegee apply stripe after stripe with correct overlaps avoiding folds (FIG 15).
- Leave to cool down and apply cuts. Reheat to 80-90°C (176-194°F) for optimum adhesion.

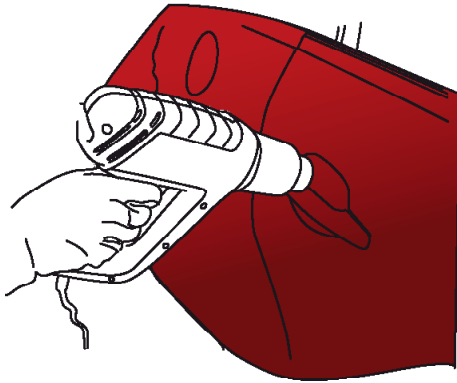
If the area is particularly visible and if you wish to achieve as good as perfect results we recommend the use of a cast film such as HX10000, which can be applied without cuts.

5.1.5 Towards full vehicle wraps

- On vehicles the application of film on gaskets between windows and/or body panels must by all means be avoided.
- Whenever a horizontal application becomes necessary as on engine hoods or roofs this may over time lead to a slight attenuation of colour and gloss compared to vertically exposed areas. As these areas suffer maximum exposure to sunlight and climatic influences they are not covered by the manufacturer's warranty regarding durability.
- If an overlap becomes necessary, HEXIS recommends 1cm (0.4in) carried out in the following way:
 - Horizontal overlap of the SUPTAC: the upper part of the film (higher) overlaps the lower part (tiling).
 - Vertical overlap of the SUPTAC: on mobile surfaces: as the film is always applied starting at the rear of the vehicle working towards the front, the overlap is done in the same way (FIG 16).
- In the case of a full vehicle wrap avoid the application of SUPTAC on plastic components made of ABS.
- The first steps are the most important and here is some essential advice:
 - Make a horizontal hinge as indicated above (cf. 5.1) just above the door handles.
 - Cut and remove the liner on the upper part.
 - Tension the film and apply with the help of a squeegee.
 - Once the upper part is applied, remove the remaining liner on the lower part.
 - Tension the film over the door handles and with a squeegee apply the film along the contours of the door handles (FIG 17).
 - Once you have completed the handles, apply the film by stretching it but without deforming it and by progressively removing the liner (FIG 18).
 - If any area is too convex or too concave make the appropriate cut. For very curved shapes (as on car bumpers) or hollow shapes (as under door handles) it is advisable to cut the vinyl in order to avoid excessive stretching of the vinyl. You may consider use of a cast film such as HX10000.
 - Do not hesitate to lift the film off and restretch it so as to eliminate any folds. If necessary, heat between 40 and 50°C (104 and 122°F).
 - Progressively apply the film by stretching the SUPTAC without deforming it, until the application is complete.
 - Finish the application: heat if necessary (FIG 19) and make any cuts needed once



(FIG 20)



the film has cooled.

5.2 Using the heat gun

You just used the heat gun for the dry procedure method onto slightly complex surfaces. The application finished, reheat using the heat gun all the parts which underwent severe warping (FIG 20). The heating temperature must be between 80° and 90°C (176 and 194°F). Check with the help of a laser thermometer (included in the MALCOV HEXIS). This heat allows for acceleration in the gluing process of the adhesive which is sensitive to the pressure. In this way, the vinyl will be definitively thermoformed.

5.3 Wet procedure

This application procedure is strictly for flat surfaces only. Never use this procedure for complex surfaces.

In all cases of wet application, the work-time will largely depend on the care taken to evacuate all water under the vinyl, otherwise a bubble problem will persist.

Use a plastic felt-covered squeegee or a MPFSEC squeegee, having already wet beforehand the vinyl surface to avoid having it scratched. Wait for it to dry before removing the Tape transfer.

- › Wet the substrate to be covered.
- › Apply the SUPTAC vinyl on the substrate (liner on outer side).
- › Take off the protective liner and wet the adhesive side with the EASY POSE solution
- › Turn over the vinyl and stretch it.
- › Position the vinyl by sliding it.
- › Wet the graphic side with the EASY POSE solution to decrease the squeegee friction.
- › Using a squeegee, get rid of the film of water by working from the centre out to the vinyl edges and by pushing harder and harder. Repeat this operation until all the water is gone.

Note: the application time is longer than the dry procedure as each visual must be dry before handling the whole design.

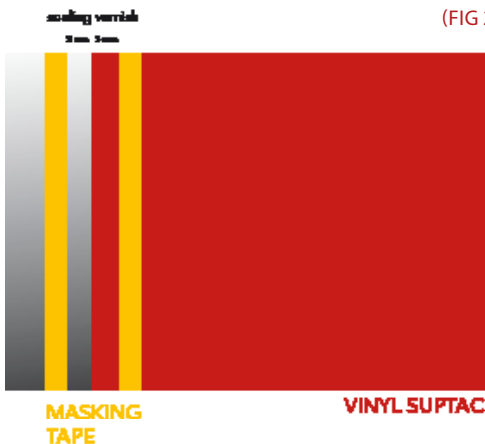
Caution: if you are using an application film (Tape), you must wait 1 to 6 hours before removing it without causing any damage to the vinyl or the substrate.

6. SEALING VARNISH

HEXIS does not recommend using a sealing varnish for a SUPTAC film application on vehicles (to avoid any risks of damaging the body).

But in certain cases, such as a SUPTAC film application on trains or construction site machines, the VR7077 sealing varnish is necessary to reinforce the film borders.

(FIG 21)



- › Make sure the surfaces are dry.
- › Apply 2 pieces of masking tape :
1 on the substrate at 5mm (0.2in) from the SUPTAC.
1 on the SUPTAC at 5mm (0.2in) from the edge (FIG 21).
- › After having put on safety gloves and glasses, apply the varnish in one layer using a paintbrush.
- › Remove the masking tape 15 minutes after application
- › Drying time is variable depending on the thickness of the varnish applied and the ambient temperature. For a film applied with a normal coating, the optimal drying time is 24 hours. Any physical strains (cleaning, abrasion ...) should be prohibited during this time.



There must be no contact between the varnish and the window seals.

7. CLEANING AND FILM MAINTENANCE

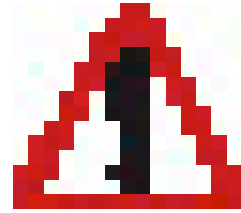
The SUPTAC film may be cleaned by any conventional automatic cleaning methods, with cleaning products and detergents used in the framework of professional maintenance for vehicles and promotional equipment. Nevertheless be careful when cleaning. Use an average pressure at a distance of at least 50cm (20in) and a water temperature of 35°C (95°F) maximum.

 **Caution:** the film should not be cleaned in the 48 hours following the application at the risk of altering its adhesion which might result in the film lifting off.

 **Caution:** corrosive agents and detergents are prohibited.
HEXIS is not liable for any adhesive films cleaned with the unspecified additives from cleaning stations.

 **Car washes:** the added products and the condition of the rotating brushes can harm the appearance of the graphics or films.
It is a fact that after 10 car washes, the polyurethane paint becomes streaked, so consequently and in the same way, these mechanical effects can alter the vinyl aspect which frees us from any responsibility.

HEXIS tip: always be sure to test a small surface before proceeding with the cleaning of your overlapping.



8. REMOVAL PROCEDURE

The SUPTAC film is equipped with a permanent adhesive and for this reason its removal needs some attention. Nevertheless, by following the instructions below, the removal will be relatively easy.

- › Using a heat gun, start from one corner and heat the film at a temperature around 60°C (140°F) (use the laser thermometer).
- › Pull up the corner using a cutter – available in the toolbox – without damaging the substrate and slowly lifting the heated parts. Continue pulling the film at a 70° to 80° angle compared to the substrate.

 *If the angle is too wide or acute, there is a risk of the film cracking.*

- › Always work on small heated areas by gently pulling up the film to decrease the risks of leaving adhesive on the substrate or of tearing the vinyl.
- › Continue heating and gently pulling off the film until there is none left. Always be aware of the active heat, the tearing angle and the tearing speed.
- › If some adhesive remains on the substrate, take a cloth soaked in our DECOLL'VIT product and rub the substrate until all traces disappear.
- › To facilitate removing the VR7077 sealing agent, it is possible to use acetone.

 **Caution:** never put the liquids in contact with the window or body sealing gaskets.

 **Before using any of our liquids, please consult our technical data sheets on our Website at: www.hexis.group.com**

For further information of a technical nature, refer to to Technical Data Sheets available for download from our website www.hexisgroup.com under professionals/data sheets.

The great diversity of media and the ever growing number of possible applications commit the user to ensure that the product is suitable for each particular usage.

The information given does not constitute a warranty. The seller assumes no liability for claims or damages beyond the replacement value of a product. Specifications are subject to changes without notice. Updates to specifications can be found on our website www.hexisgroup.com.



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