PRODUCT BULLETIN

APPLICATION AND REMOVAL
Cast Vinyl Film
V100WG2

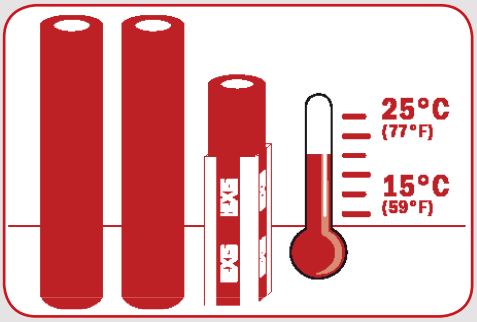
ESSENTIAL ACCESSORIES

- Tesa® 7476 adhesive tape
- Masking tape
- HEXIS'O surface cleaning agent
- CLEAN HEXIS medium degreaser
- ND45 degreaser
- PC30G2 or V750 (flat surface) laminate
- Assorted squeegees
- VR 7077 edge sealing varnish
- Electric heat gun
- EASY POSE application fluid
- An MPFSEC aluminium scraper
- A MALCOV HEXIS toolbox including :
    - Laser thermometer
    - Magnets
    - Stanley® measuring tape
    - Knife
    - Scalpel
    - Ten 30° knife blades
    - Pair of gloves
    - Ten scalpel blades
    - Plastic squeegee
    - Red sheet size felt pad
- DECOLL'VIT vinyl 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

V100WG2 film consists of a 50µm (2mil) PVC film. It adheres perfectly to glass, steel, aluminium, PVC, melamine… Avoid grained surfaces or those coated in acrylic paint. The film's flexibility makes it possible to apply it to flat, corrugated, concave, convex and riveted surfaces.

PREPARING THE TARGET SURFACE

You can apply HEXIS films to a wide variety of substrates, on the condition that these substrates have a clean, dry, smooth and non-porous surface with no traces of oil, grease, wax, silicone or other polluting agents. To avoid any unpleasant surprises, work on the principle that all substrates are polluted and must be cleaned (cf. Chapter 3).
Do not forget to first do a test on a small surface area to make sure that the substrate will not be damaged.

CONTENTS

Application methods are based on the manufacturer's experience and are not restrictive. To ease application, comply with recommendations. HEXIS also offers training sessions to enable professionals to achieve optimum results.

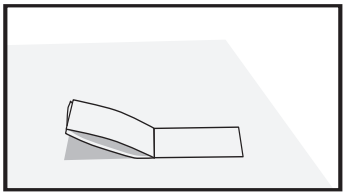
1. RECOMMENDATIONS

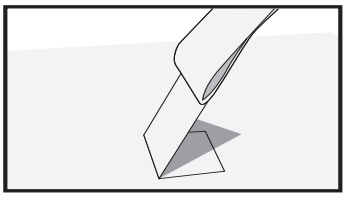
› In a full vehicle wrap avoid applying self-adhesive films on plastic components made of ABS.
› The V100WG2 vinyl achieves optimum adhesion after 24 hours of contact.

2. PRELIMINARY TESTING OF THE TARGET SURFACE

› Fresh paint must dry for at least 7 days at 25°C (77°C) in order to outgas completely. A outgassing test must be carried out before the application of a self-adhesive film.
› Older paint or paint that has become dusty or flaky must be sanded and restored before the application and a rip test should be carried out.

2.1 Tear off test





Using a self-adhesive tape of the type Tesa® 7476 or similar, apply on an area of 2.5cm x 5cm (1in x 2in) plus some extra length to hold with fingers. Fold and tear off with a swift movement at a right angle to the surface. The adhesive tape should not show any traces. Repeat the test at different places.
> HEXIS provides, on request, samples of the 2.5cm x 5cm Tesa® tape.

2.2 Outgassing test

Use a 15cm x 15cm (6in x 6in) square of adhesive polyester or of the film to be applied. Leave for 24 hours or 2 hours at 65°C (149°F). The appearance of bubbles indicates that the substrate has insufficiently outgassed. Repeat the test after a couple of days or else use the method described below.

2.3 Outgassing by flaming (polycarbonate, translucent or diffusing metacrylate, expanded PVC...) consists in modifying the surface tension of a substrate by wiping it with the flame of a gas burner. Proceed in even and fast sweeps, both horizontally and vertically over the entire surface of the substrate (use the blue tip of the flame).

Attention: do not stop the movement of the flame over a single spot for more than 1 second (risk of damage to the substrate). The film must be applied immediately as the effect of this type of gentle surface treatment disappears after a few minutes).

⚠ *HEXIS is not liable for any bubbles due to outgassing.*

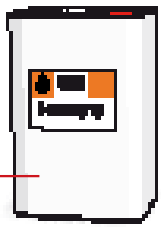
3. CLEANING

Depending on the condition of the substrate there are three possible cleaning methods:

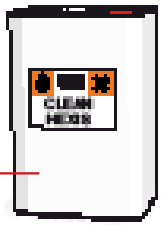
3.1 Clean surface appearance

Before applying the film on the target surface, we recommend you clean with a gentle cleaning solution such as HEXIS'O. Dry with a clean lint free cloth.

HEXIS'O
cleaner and degreaser



CLEAN HEXIS
cleaner and medium degreaser



ND45
cleaner and strong degreaser

3.2 Soiled surface appearance

Clean the substrate with a cloth soaked in CLEAN HEXIS cleaner degreaser and wipe dry before evaporation.
If the substrate is contaminated with persistant polluting agents such as diesel petrol, tar or rubber, use a cloth soaked in a strong degreaser such as HEXIS ND 45. If necessary, use a soft non-abrasive scraper beforehand.
In all cases wash the concerned areas with the HEXIS'O solution.

3.3 Special cases:

Remember to adapt the methods for the surface preparation to the type of surface and their condition. Thus, painted surfaces must be dry and hardened, baked paints must have cooled down. Air dried paints or vehicle paints require 7 to 10 days of drying before the application of a film. In the case of bare metallic surfaces clean the substrate with a cloth soaked in HEXIS'O solution.
The nature of the film to be applied also determines particular treatments (cf. technical data sheets available on www.hexisgroup.com).

4. LAMINATION

We recommend you laminate the V100WG2 film with the PC30G2 laminate. The combination of the V100WG2 film with the V750 laminate concerns exclusively applications on flat surfaces.
Ensure that the film is dry before application: the printed V100WG2 is touch dry after 10 minutes at the most, however it may be necessary to wait for 24 hours before applying, laminating or cutting the film. To ensure the solvents evaporate completely leave the cut sheets to dry in ventilated racks.

5. APPLYING V100WG2 FILM

The «dry» method makes it possible to apply V100WG2 to complex surfaces, such as full vehicle wraps, corrugated iron, rivets and so on.
The «wet» method is reserved exclusively for flat surfaces.

Before any application of V100WG2, ensure that all surfaces are clean (cf. paragraph 3), paying particular attention to the critical points such as corners and edges.

The application temperature must be between 15 and 25°C (59 and 77°F), for both the ambient temperature and the temperature of the substrate. The ambient humidity level may also have an influence on the quality of the film's adhesion to the substrate.

5.1 Dry method

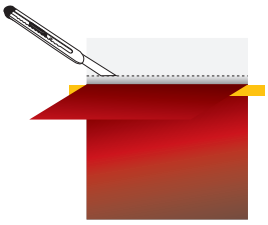
In all cases, the first stages of the vinyl application method are the same and apply to all types of surface (flat or complex):

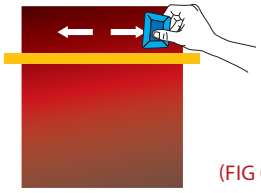
5.1.1 Starting out and applying V100WG2 to flat surfaces

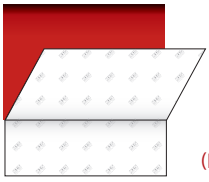
- Wear gloves (available from HEXIS)
- Position the printed film on the target surface so as to hold it in place without deforming it. (FIG 01)
- Using strips of masking tape or magnets, make a hinge on the upper horizontal part, preferably on a flat surface. (FIG 02)
- Peel off 10cm (4in) of liner (FIG 03) and start applying the vinyl with a squeegee (first cover the edge with a felt strip), at an angle of 45° and applying from the centre to the sides. (FIG 04)
- Remove the hinge to continue removing the liner, depending on the type of surface (see paragraphs below). (FIG 05)
- When applying to flat surfaces, squeegee the whole surface insisting well on the contours.


(FIG 01)


(FIG 02)


(FIG 03)


(FIG 04)

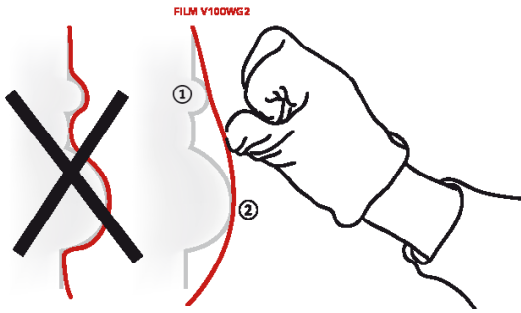

(FIG 05)

5.1.2 Corrugated surfaces

Once step 5.1.1 has been completed, you may encounter small or large corrugations, for which application of the film is different.

5.1.2.1 Small corrugations: «stretched application» (FIG 06)

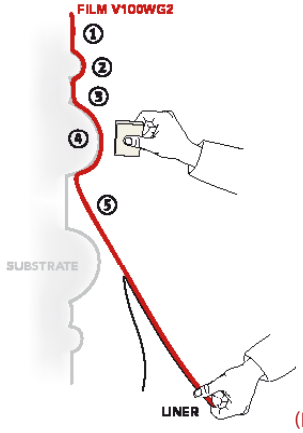
- Remove all the liner.
- Stretch the vinyl over the substrate so that the vinyl sticks only to the raised areas (FIG.06 1 and 2).
- Apply the film to the contours with your finger or a squeegee.
- Heat the stretched areas to between 40 and 50°C (104 and 122°F).
- Still heating, press your thumb into the hollow areas of the corrugation on both sides so as to stick the film down.
- Without heating, apply the part between the corrugations using a squeegee, smoothing from the centre towards the sides.
- Now cut the contours if your substrate is composed of several parts.
- Once the work has been completed, heat all the parts that have undergone major deformation to between 80 and 90°C (176 and 194°F) to thermoform the product definitively.



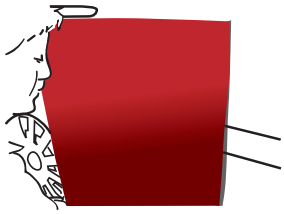
(FIG 06)

5.1.2.2 Large corrugations: «extended application» (FIG 07).

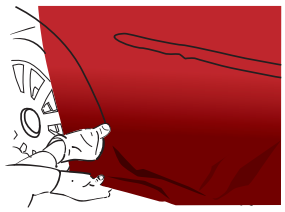
- Remove the liner progressively, keeping it tense towards to bottom.
- Apply the film with your thumb or a squeegee by descending horizontally into the hollow of the corrugation.
- Start by applying to hollow 1, then relief 2 and hollow 3.
- Go up to the next relief 4 and continue down to 5.



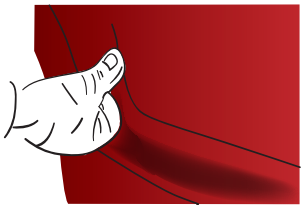
(FIG 07)



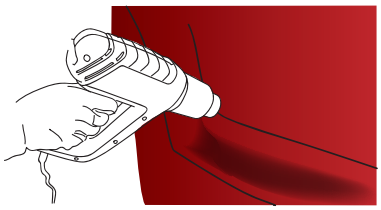
(FIG 08)



(FIG 09)



(FIG 10)



(FIG 11)

5.1.3 Concave surfaces

Once step 5.1.1 has been completed, proceed as follows:

› Remove the liner (FIG 08).

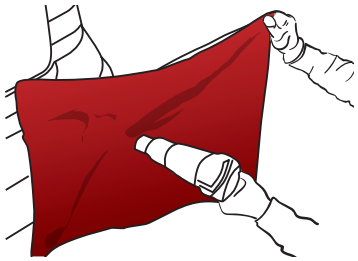
› Stretch the vinyl over the substrate so that the film touches only the parts in relief.

› Apply the film with your finger or a plastic squeegee covered with felt (FIG 09).

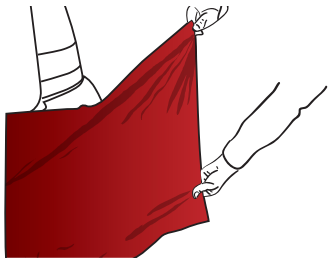
› Heat to between 40 and 50°C (104 and 122°F) and press your thumb down into the hollow part so as to allow the vinyl to stick (FIG 10).

› Once the application has been completed, heat all the hollow parts that have undergone major deformation at between 80 and 90°C (176 and 194°F) in order to thermoform the product definitively (FIG 11).

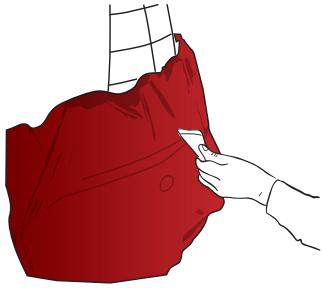
> If air bubbles persist, do not cut them. Pierce them with a needle instead.



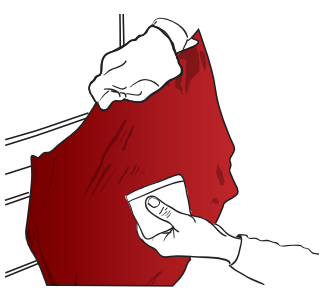
(FIG 12)



(FIG 13)



(FIG 14)



(FIG 15)

5.1.4 Convex surfaces

Once step 5.1.1 has been completed, proceed as follows :

› Remove the liner.

› Heat the vinyl (FIG 12) then stretch it so as to completely wrap the convex surface (FIG 13).

› Apply the vinyl to the entire surface using a plastic squeegee covered in felt, making sure to smooth the film gently over the convex surface (FIG 14) so as to remove any tension or folds.

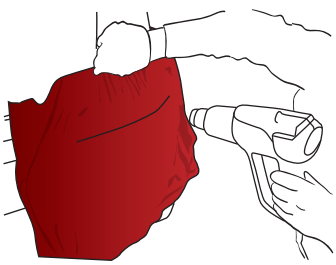
› If necessary, lift the film, restretch it and reapply it (FIG 15).

› After this operation, heat (FIG 16) between 40 and 50°C (104 and 122°F) and then smooth out with a squeegee.

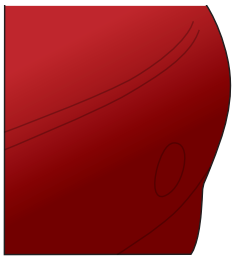
› Leave to cool.

› Cut the film if necessary and reheat the edges at 80-90°C (176-194°F) for optimal adhesion.

› The application is complete (FIG 17).



(FIG 16)



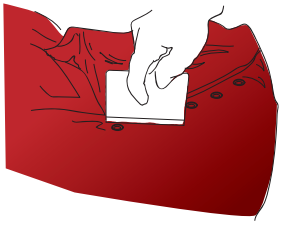
(FIG 17)

5.1.5 Riveted surfaces

Once step 5.1.1 has been completed, proceed as follows:

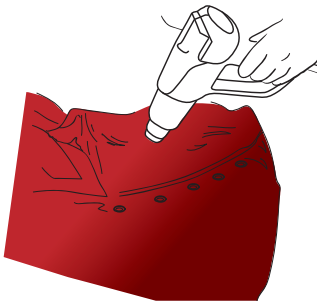
› When you come across a rivet, stretch the vinyl. Heat a little between 40 and 50°C (104 and 122°F).

› Using a squeegee or your finger, go around each rivet (FIG.18) and pierce the rivet 2 or 3 times with a needle to allow any trapped air to escape.



(FIG 18)

› Next, heat each rivet again at 80-90°C (176-194°F) (FIG.19).



(FIG 19)

5.1.6 Further information for full wraps

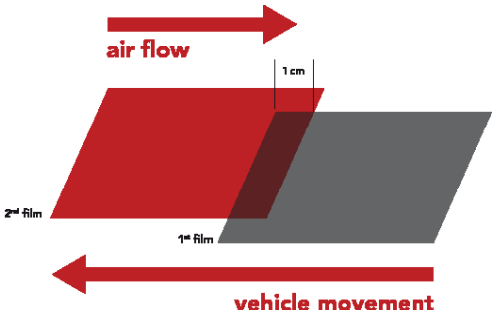
› On vehicles, applying the film to the seal joints on the windows or body panels must be avoided at all costs.

› A horizontal application may be necessary in certain circumstances, such as for the bonnet or roof. In time, this may lead to a slight attenuation of the colour or gloss in relation to the areas exposed vertically. As these zones are exposed to maximum sunlight and weather conditions, Hexis cannot be held responsible with regard to the durability of the product.

› If an overlap is necessary, Hexis recommends 1cm (0.4in), as follows:

› Horizontal overlap of V100WG2 film: the upper part of the film (top) overlaps the lower part of the film (bottom), like roofing tiles.

› Vertical overlap of V100WG2 film: on a mobile surface, starting with the principle that you should always apply the film from the back of the vehicle towards the front, the overlap will be done in the same way (FIG 20).



(FIG 20)

› Avoid applying the V100WG2 film to plastic components made from ABS or similar.

› The first steps are very important, so here is some advice:

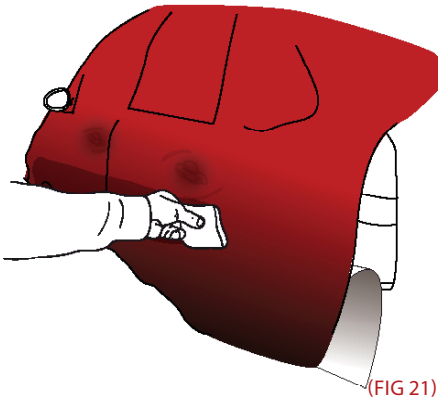
› Make a hinge as indicated above, just above the doorhandles.

› Cut and remove the liner from this upper part.

› Then stretch the film and apply it using a squeegee. Heat at between 40 and 50°C (104 and 122°F) if there are folds, stretch and apply.

› Once the upper part has been applied, progressively remove the liner from the lower part.

› Stretch the film over the doorhandles and make sure, with the aid of a squeegee, that you have gone all round the handles. Once you have completed the handles, apply the film by stretching it but without deforming it (FIG 21) and by progressively removing the liner.

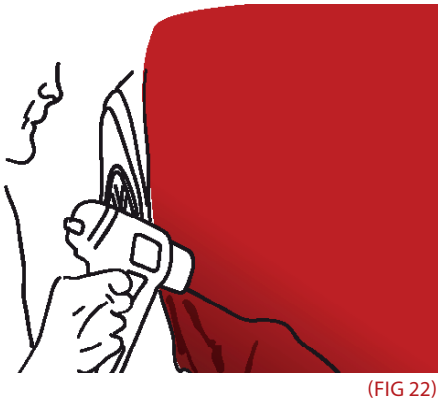


(FIG 21)

› 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).

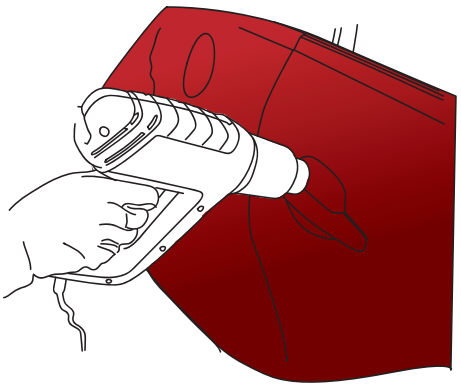
› Progressively apply the film by stretching the V100WG2 without deforming it, until the application is complete.

› Finish the application: heat if necessary (FIG 22) and make any cuts needed once the film has cooled.



(FIG 22)

(FIG 23)



5.2 Using the heat gun

You have just used the heat gun in the dry application method for complex surfaces (concave, convex and riveted).
Now that the application process has been completed, use the heat gun to reheat all the parts that have been subject to major deformation (FIG.23). The heating temperature must be between 80 and 90°C (176 and 194°F). To verify this, use the laser thermometer (included in the MALCOV HEXIS tool case).
The heat makes it possible to accelerate the sticking process of the pressure-sensitive adhesive. The vinyl will thus be definitively thermoformed.

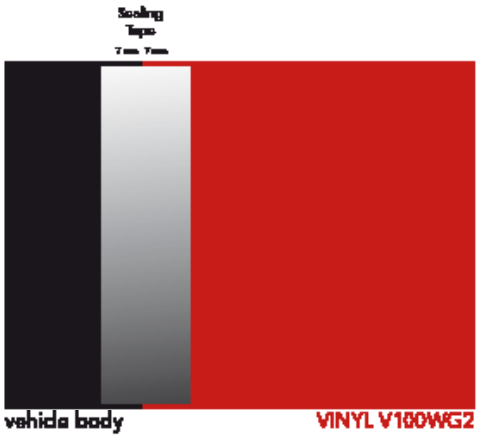
5.3 Wet method

This application method is reserved exclusively for flat surfaces. Do not use this method on complex surfaces.

In all cases of wet application, the length of the application process will depend greatly on the care taken to ensure that the water beneath the vinyl has been eliminated; otherwise a risk of bubbles will remain. Use a plastic squeegee covered with felt, or an MPFSEC aluminium scraper, having first wet the surface of the vinyl so as not to scratch it.

- Moisten the substrate to be treated.
- Apply the V100WG2 vinyl to the substrate (liner on the outside).
- Remove the protection liner and moisten the adhesive face with EASY POSE solution.
- Turn the vinyl over and pre-adjust it.
- Slide the vinyl into position.
- Moisten the graphic side of the vinyl with EASY POSE solution so as to decrease the rubbing from the squeegee.
- Using a squeegee, eliminate the film of water by starting from the centre and working towards the edges of the vinyl, pressing down harder and harder. Repeat the operation until all the water has been eliminated.

Remark: this application method takes longer than the dry method as each visual element must be dry before manipulating the whole item.



(FIG 24)

6. EDGE SEALING TAPE OR SEALING VARNISH

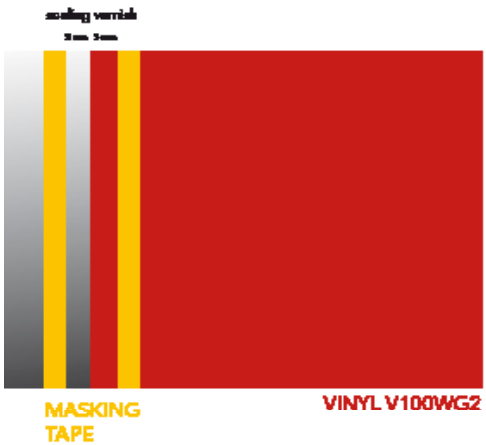
HEXIS does not recommend using sealing varnish when applying V100WG2 film to vehicles (risk of damaging the bodywork), but instead edge sealing tape with PC30G2 or V750 lamination.
However, in certain cases, such as when applying V100WG2 film to trains or heavy machinery, VR7077 sealing varnish may be needed to reinforce the edges of the film.

6.1 Edge sealing tape

To increase the adhesion of V100WG2 film to elements that are sensitive to use such as door sills, wheel cages and so on, you can use strips of V750 lamination film on flat surfaces or PC30G2 for slightly curved surfaces.

- Cut a 14mm (½in) wide strip of lamination film.

- Apply the strip by superimposing around 7mm (¼in) on the bodywork and 7mm (¼in) on the V100WG2 film. (FIG 24)



(FIG 25)

6.2 Sealing varnish

To increase the adhesion of the V100WG2 around the edges on flat surfaces out of preference, particularly corners, HEXIS recommends that you use VR7077 sealing varnish.

- Make sure all the surfaces are dry.

- Apply 2 strips of masking tape: one on the substrate, 5mm (0.2in) from the V100WG2, one on the V100WG2, 5mm (0.2in) from its edge. (FIG 25)
- Apply a single coat of varnish with a brush after putting on gloves and protective goggles.
- Remove the masking tape 15 minutes after application.
- The drying time is variable, depending on the thickness of the varnish and room temperature: for varnish applied without excess, the optimum drying time is 24 hours. All forms of physical aggression (cleaning, abrasion…) must be forbidden during this period.

⚠ *Avoid all contact between the varnish and the window seals.*

7. CLEANING AND MAINTENANCE OF THE FILM

V100WG2 film can be cleaned using any standard automatic cleaning method, with the cleaning products and detergents used in the context of the professional maintenance of vehicles and advertising supports.
Cleaning must nevertheless be undertaken with care: medium pressure at a distance of at least 50cm (20in) and a water temperature of 35°C (95°F) maximum.

⚠ *Warning: it is nevertheless advisable to not clean the film in the 48 hours following its application as there is the risk that this may alter the adhesion process and result in the film lifting off.*

⚠ *Warning: all corrosive solvents and detergents should be avoided.*

⚠ *HEXIS declines all responsibility for damage caused to adhesive films cleaned with the unknown additives used in carwashes.*

⚠ *Carwashes: the additives and condition of the rotating brushes can have a harmful effect on the durability of graphics or films. It is commonly accepted that 10 automatic carwashes result in scratches to polyurethane paint. For this reason, and in the same manner, these mechanical effects may damage the appearance of the vinyl. HEXIS cannot be held responsible for this.*

HEXIS advice: always carry out a test on a small surface before cleaning the whole vehicle.

8. REMOVING THE VINYL

V100WG2 film carries a permanent adhesive, so its removal needs some attention. However, if you follow this method, the removal will be relatively easy.

› With the heat gun, start in one corner and heat the film at a temperature close to 60°C (140°F) (verify with the laser thermometer).

› Lift up the corner with a knife – included in the toolcase – without damaging the substrate. Continue to lift the film as you heat the film. The film should form an angle of 70° to 80° in relation to the substrate.
⚠ *A wider or narrower angle will result in the film breaking more easily.*

› Always proceed gradually by heating small areas and gently lifting up the film to decrease the risk of any adhesive remaining on the substrate, or of the vinyl breaking.

› Continue heating and gently remove the film until it has been completely removed. Always pay attention to the temperature, the angle at which you stretch the film and the speed at which you remove the film.

› If any adhesive remains on the substrate, take a cloth soaked in our DECOLL'VIT product and rub the substrate until the traces disappear.

› To make it easier to remove the VR7077 sealing varnish, it is possible to use acetone.

⚠ *Warning: do not bring the liquids into contact with any window or bodywork seals.*
⚠ *Before using any of our liquid products, consult the technical data sheet on our internet site: www.hexisgroup.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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