PRODUCT BULLETIN

APPLICATION AND REMOVAL METHOD

Protective film
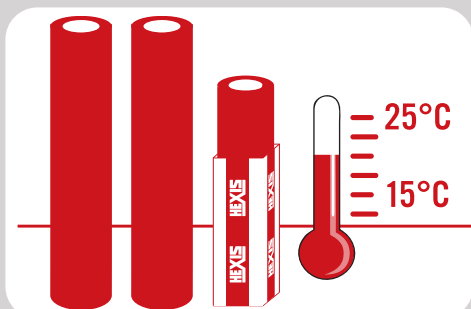
BUILDING WINDOW FILMS SKYLINE RANGE

REQUIRED EQUIPMENT

› 19-l SHAGSPRAY sprayer
› HEXISOAP application solution to be diluted
› Window scraper:
  › SCRUBFLOOR + SCRUBBLADE
› Window squeegee:
  › POIGNEVITRE + LAMEVITRE
› CUTVITRE cutter and CUTLAME refill blades
› Application squeegee:
  › MARVITRE or SHAGFENCEM
› Ruler
› Roll of absorbent paper
› Sealing varnish (for ref.: SHIELD, CLIMATE40, CLIMATE45)

STORE YOUR FILMS UNDER APPROPRIATE CONDITIONS

Keep the films away from all major sources of heat (radiators and heaters, direct exposure to sunlight, etc.): the ideal temperature ranges from 15 °C to 25 °C (from 59 °F to 77 °F).
Store them in an atmosphere with low humidity (with relative humidity between 30 % and 70 %).

Store your films in their original packaging, in a dry environment. The rolls are wrapped in sealed polyethylene bags and are maintained in their cardboard packaging by plastic suspension flanges to prevent the windings from being crushed by their own weight.

• Store the rolls in horizontal position <u>ONLY.</u>

FEATURES

HEXIS carries a very comprehensive range of SKYLINE building protection films. Their wide-ranging characteristics provide your windows with higher resistance and an aesthetic appearance. They also considerably improve everyday living in your buildings and offices (see compatibility chart on the following page).

PREPARING YOUR APPLICATION SURFACE

HEXIS building films SKYLINE can be applied to a wide variety of building windows (see compatibility chart on the following page), provided their surface is clean, smooth and free of any traces of oil, grease, wax, silicone or other polluting agents. To avoid unexpected outcomes, always assume that every substrate is dirty and needs to be cleaned.

Carry out a preliminary test with the cleaning products on a small surface area to check that the substrate and the sealings remain undamaged.

> The technical data sheets of each film used are available on our website www.hexis-graphics.com.

CONTENT

REF.	INDOORS	OUTDOORS	TINT	Single glazing CLEAR	Single glazing TINTED	Single glazing TINTED & REFLECTIVE	Double glazing CLEAR	Double glazing TINTED	Double glazing TINTED & REFLECTIVE	LOW EMISSION (INERT GAS FILL)	CLEAR, LAMINATED (glass with interlayer film facing the exterior of the building)	CLEAR, LAMINATED (glass with interlayer film facing the interior of the building)
REFLECT20	✓		Reflective silver	✓	✓	✓						
REFLECT15X		✓	Reflective silver	✓	✓	✓	✓	✓	✓	✓	✓	✓
REFLECT35	✓		Semi-reflective silver	✓	✓	✓	✓		✓			
REFLECT35X		✓	Semi-reflective silver	✓	✓	✓	✓	✓	✓	✓	✓	✓
REFLECT50	✓		Semi-reflective silver	✓	✓	✓	✓	✓	✓		✓	
REFLECT50X		✓	Semi-reflective silver	✓	✓	✓	✓	✓	✓	✓	✓	✓
SRBLUE20X		✓	Reflective blue	✓		✓	✓		✓			
SRBRONZ20	✓		Reflective bronze	✓		✓			✓			
SRBRONZ20X		✓	Reflective bronze	✓		✓	✓		✓			
NEUTRAL20X		✓	Light and neutral colour, slightly reflective film	✓	✓	✓	✓	✓	✓			✓
NEUTRAL50X		✓	Light and neutral colour, slightly reflective film	✓	✓	✓	✓	✓	✓	✓		✓
CLIMATE80X		✓	Transparent, anti-heat	✓		✓	✓		✓			✓
CLIMATE40	✓		Tinted, anti-heat	✓	✓	✓	✓	✓	✓	✓	✓	
CLIMATE45	✓		Reflective (heat reflection)	✓	✓	✓	✓		✓		✓	
SAFE100	✓		Safety film	✓	✓	✓	✓	✓	✓	✓	✓	✓
SAFE200	✓		Safety film	✓	✓	✓	✓	✓	✓	✓	✓	✓
SAFE100X		✓	Anti-graffiti, safety film	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIRROR	✓		One-way mirror	✓		✓			✓			
SHIELD	✓		Anti-fading	✓	✓	✓	✓	✓	✓		✓	
DUBAI	✓		Dichroic films	✓								
MIAMI	✓		Dichroic films	✓		✓			✓			
GRANDIENT1	✓		Graduated frosted effect	✓								
GRANDIENT2	✓		Graduated frosted effect	✓								

Compatibilities chart

1. RECOMMENDATIONS:

› Please ensure that the glazing to be covered is compatible with partial or total covering with adhesive-coated film.

⚠️ *If any doubt remains, please refer to the technical data sheets or contact your HEXIS representative. In most cases of high-risk applications, use films suitable for outdoor use.*

› **For an application to triple glazing, it is mandatory to carry out a preliminary compatibility trial (glazing/film).**

› Prepare your project in advance:

› Position the film rolls according to the size of the windows to be covered.
  - For small windows (height less than 1520 mm): prepare the film so that it can be unwound horizontally with one of the factory cuts placed along the upper seal of the window.
  - For large windows (height greater than 1520 mm): prepare the film so that it can be unwound vertically with one of the factory cuts placed along one of the side seals of the window.
  - Cut the film slightly larger than the dimension of the glass (5 cm width and 10 cm length).
  - Wind up the film with the liner on the inner side of the roll.
  - Fasten each roll using masking tape.

⚠️ *Building films are fragile products, any fold may irrevocably deteriorate the product.*

› Use only the cleaning products listed in this guide. All other products should be avoided.

› For indoor applications, air conditioning must be switched off.

› It is mandatory to apply a marine-type sealing varnish to the films' edges: SHIELD, CLIMATE40, CLIMATE45 and for all films applied outdoors.

2. GLAZING AND THERMAL BREAKAGE:

The application of a building film must be carried out on a glazing in good condition and free of defects.

Glazed edges damaged or chipped during manufacturing, cutting, transport or installation are most commonly the starting point for breakage by thermal shock. Building films accentuating the energy absorption factor of the glazing, can amplify/accelerate the risk of breakage through thermal shocks.
It is the responsibility of the installer to verify the suitability and compatibility of the glazing with the application of building film. HEXIS are not liable for glass breakage caused by window film application to a defective glazing. The technical data sheets of building window films are available on our website www.hexis-graphics.com.

⚠️

You must consider certain factors when installing a building window film on glazing. Film application on glazing can sometimes lead to high temperature differences (> 25 °C (> 77 °F)) between two points of the pane that can cause the thermal breakage of the pane.
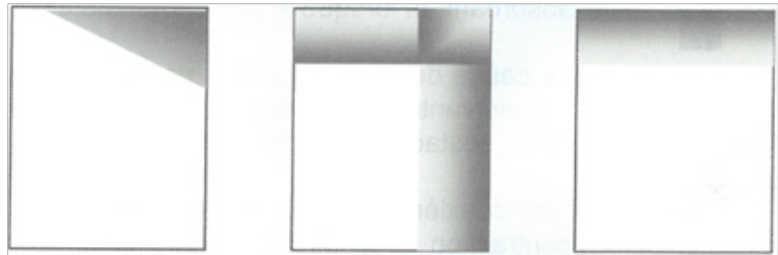
The following factors must be considered:

› the type of film *(for further technical information, please refer to technical data sheets available on our website at www.hexis-graphics.com)*,
› the type of glazing *(single, double, triple, tinted, tempered, laminated, etc.)*,
› the glazing exposure *(northern exposure ranging from -60° to +45° poses only a low thermal breakage risk due to its non-exposure to sunlight)*,
› the inclination of the glazing,
› the climatic conditions *(season, quality of the sky, temperatures, etc.)*,
› the thermal inertia of the window frame *(the higher the thermal inertia is, the less the temperature of the frame will adapt to external conditions)*,
› the indoor environment of the glazing *(furniture, stickers or posters affixed to the glazing, radiators, convectors, etc.)*,
› the outdoor environment of the glazing *(projected shades of trees, close buildings, overhanging terraces, canopies, external blinds, etc.)*.

These types of shades are very common, and the following diagrams summarise the situations commonly encountered.

Shades in straight lines where the shaded area covers most of the pane.

Angular shadows, L-shape or of moderate width.

Multiple and/or narrow shades around the pane perimeter.

These types of shades are generally acceptable for interior application of building window application to clear single and annealed glazings. However, in most cases, choose a building window film for outdoor application.

Before any application, it is required to check the compatibility of the building window film with the glazing (see compatibilities chart on page 2). HEXIS cannot be held responsible in any way for glass breakage caused by building window film application to an incompatible glazing. The technical data sheets of building window films are available on our website www.hexis-graphics.com.

3. SUBSTRATE CLEANING:

Cleaning of the substrate is mandatory before performing the application. It should always be assumed that the substrate is not clean. Some residues or soiling may not be visible; however, they may impact the adhesion of the film.

For an indoor building window film application, it is recommended to protect floors, walls and furniture from soapy water splashes.

› Prepare the 19-l sprayer (SHAGSPRAY):
- Measure the quantity of water to put in the sprayer.
- Add 2 to 4 pumps of HEXISOAP solution per litre of water to the sprayer.

› Spray the soapy liquid generously on the entire window, as well as on the seals and in the corners, except for the top glazing bead, which should be left untouched. (FIG. 01)

Figure 01

› Start by removing any dirt from under the window seals using the SCRUBFLOOR scraper. To do this, insert the corner of the blade under the top seal, taking care to not cut it (FIG. 02) and run the blade along the entire length, then do the same for the other sides of the glazing.

Figure 02

⚠ *HEXIS are not liable for any damage caused to the seals and glazing during the cleaning procedure.*

    <u>*HEXIS tip:*</u> *replace the blade of the glass scraper regularly.*

› Squeegee the entire glass surface using the SCRUBFLOOR scraper, the blade in a flat position, starting from the top of the window. Gradually move downwards in small semi-circular arcs on the window to remove any adhesive residues, dust and grease. (FIG. 03)

Figure 03

› Spray the liquid one more time on the entire glazing surface without wetting the upper glazing bead.

› Run the window squeegee (POIGNEVITRE + LAMEVITRE) along the top glazing bead while drying it with absorbent paper. (FIG. 04)
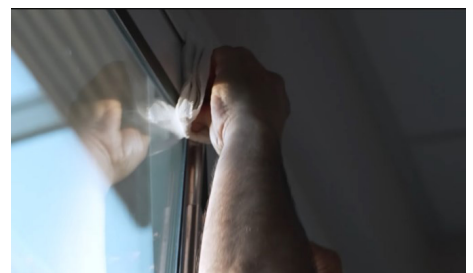

Figure 04

4. BUILDING WINDOW FILM APPLICATION:

Before any application of the building window film, make sure that all surfaces are cleaned (cf. paragraph 3. SUBSTRATE CLEANING: page 4) paying particular attention to critical areas such as corners and edges.

Our HEXIS building window films can be applied indoors and outdoors, according to the type of film.

    <u>*HEXIS tip:*</u> *please refer to the technical data sheets of the films before any application.*

⚠ *Building films are fragile products, any fold may irrevocably deteriorate the product.*

4.1. Separating the liner from the film:

› Take one of the rolls prepared in advance (by following the recommendations in §1).

Figure 05

Figure 06

Figure 07

Figure 08

› Unwind approximately 20 cm of the film.

› Slightly moisten the liner (inner surface of the roll) with the SHAGSPRAY. (FIG. 05)

› Wind up again the film tightly, to about 2 or 3 cm from the edge.

› Start separating the liner from the adhesive-coated film starting from a corner, over a few centimetres. (FIG. 06)

› Continue separating the liner from the film over a length of approximately 10 cm, taking care not to leave fingerprints on the adhesive-coated side of the film.

HEXIS tip: Use the surface of your fingernails to gently push back the adhesive-coated film from the liner, thus minimising the risk of leaving marks on the adhesive.

› Fold the liner on the roll and hold it with your fingers in order to avoid that it sticks to the adhesive-coated side of the film.

› Position the spray lance nozzle between the adhesive-coated side of the film and the liner. (FIG. 07)

› Continue separating the liner with the spray lance while spraying soapy water on the adhesive-coated side.

› Continue holding the liner against the roll with your fingers, then re-wind the roll from the inside. (FIG. 08)

Figure 09

› Unwind approximately 20 to 30 cm of material, ensuring that the liner remains firmly pressed against the non-adhesive-coated side of the building window film. (FIG. 09)

The adhesive-coated side of the building window film is no longer protected, so it is important to keep the film away from any surfaces to which it could stick.

› Re-wind the roll from the inside while keeping the unprotected part of the adhesive-coated film in the open air.

› Spray soapy water on the adhesive-coated side of the film.

4.2. Film installation:

Figure 10

› Spray the soapy liquid one more time on the entire glazing surface without wetting the upper glazing bead. (FIG. 10)

For a glazing higher than 1520 mm, the film must be applied vertically, whereas for a glazing with a height less than 1520 mm, it must be applied horizontally.

› Place the adhesive-coated side of the film against the window and apply if possible:
  - one of the factory cuts along the upper seal of the window in the case of a glazing less than 1520 mm high.
  - one of the factory cuts along one of the sides of the window in the case of a glazing more than 1520 mm high.

Avoid covering the upper glazing bead in order to minimise the risk of impurities getting between the glass and the adhesive.

› Adjust the position of the film on the pane.

Figure 11

› Unwind the film and while holding with the other hand, the part in contact with the glass, without applying pressure. (FIG. 11)

⚠ *Too much pressure on the film would make it adhere to the substrate and make it more difficult to adjust its position.*
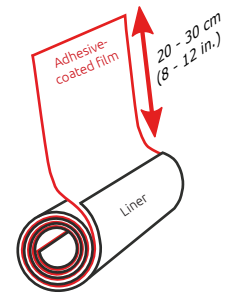
Figure 12

› Unwind the roll completely along the pane, while taking care that the liner remains in contact with the outer side of the film. (FIG. 12)

The liner must be kept away from the glass during unwinding so as not to remove the water from the glazing, which could cause the film to stick to the substrate.

› Apply superficially the entire film with a moderated pressure of the hand.

4.3. Removing the liner:

Figure 13

Remove the liner (FIG. 13):

- Thumbs pointing downwards.
- The other fingers must push the liner towards the thumbs.
- Slide down to approximately 20 cm from the bottom of the building window film.

› Remove the remaining liner by pulling it down and away from the building window film.

4.4. Setting the film position:

Figure 14

› Spray soapy water on the surface of the film using SHAGSPRAY. (FIG. 14)

For glazings less than 1520 mm high, the next two steps can be skipped since the film has been positioned along the upper glazing bead seal.

Figure 15

› First apply the film to a horizontal area, by working from the centre outwards, along the top glazing bead. (FIG. 15)

› Carry out the cutting of the upper part of the film. (FIG. 16)

Proceed as follows in order to protect the window seals and avoid serrated cuts:

     - The MARVITRE squeegee must be leant on the outer edge of the seal.
     - The cutter blade must be flush with the squeegee by forming a 45-degree angle with the window.
     - Then move the squeegee-cutter combination along the seal.

HEXIS tip: Break off a tooth of the cutter blade before cutting on the glass. A blunt or worn blade is usually the cause of scratches on glass during application.

HEXIS cannot be held responsible for any damage and degradations caused to the substrate during film cutting. It is the responsibility of the installer to take all the necessary precautions during this operation.

Figure 16

› Apply or reapply the film immediately using the SHAGMITCH squeegee to prevent water from getting under the film. (FIG. 17)

Figure 17

› Reapply the upper part of the film using a MARVITRE squeegee covered with absorbent paper to wipe the film dry. (FIG. 18)

Figure 18

The following application must be carried out in small successive areas of approximately 40 cm x 40 cm.

› Apply the film from top to bottom, from the centre axis of the window up to near the edges. (FIG. 19)

At this time, apply the film without squeegeeing up to the edges of the glazing beads to prevent pushing dust on to them.

HEXIS tip: For an even application, avoid semi-circular movements with the squeegee.

Figure 19

4.5. Dimensioning:

› Cut the film to the dimensions of the window.

⚠️ *The film must not be in contact with the seals. After cutting, there should be a slight gap of approximately half a millimetre between the film and the seals.*

HEXIS tip: Break off a tooth of the cutter blade before cutting on the glass. A blunt or worn blade is usually the cause of scratches on glass during application.
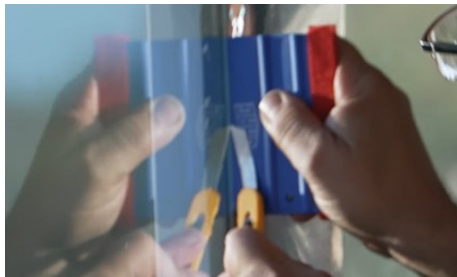

Figure 20

› Proceed as follows in order to protect the window seals and have sharp and straight cuts:

   - The MARVITRE squeegee must be leant on the outer edge of the seal.
   - The cutter blade (CUTLAME) must be leant on the squeegee.
   - The cutter (CUTVITRE) must form a 45-degree angle with the window.
   - Move simultaneously the squeegee-cutter combination along the glass seal, with the cutter blade situated in the middle of the squeegee. (FIG. 20)

HEXIS cannot be held responsible for any damage and degradations caused to the substrate during film cutting. It is the responsibility of the installer to take all the necessary precautions during this operation.

› Slightly spray the soapy solution on the window without wetting the top of the film that has already been applied.

› Start by applying the film horizontally from the top of the glazing, starting from the centre axis to the border.

› Then gradually move downwards by overlapping each pass of the squeegee.

Figure 21

› Make 4 to 5 passes with the squeegee before applying the film to the other side of the centre axis. (FIG. 21)

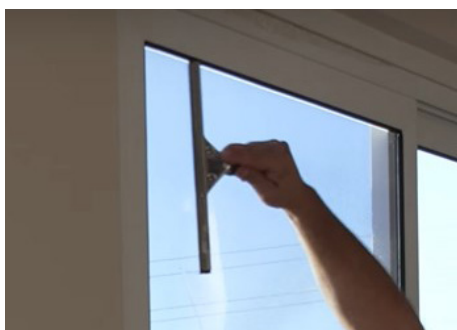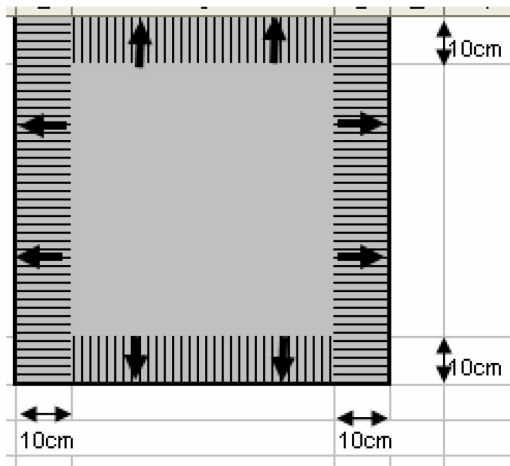› Continue applying the film in the same way, from one side to the other, until reaching the bottom of the window.

Figure 22

› The final step consists of cleaning the window. Spray a little bit of soapy water on the window, then wipe the entire window with a window squeegee (POIGNVITR + LAMEVITRE). (FIG. 22)

Figure 23

› Dry the film perimeter with the MARVITRE squeegee wrapped with absorbent paper (FIG. 23). Wipe off all the edges on approximately 10 cm as shown in the diagram below:

⚠️ *Small water bubbles or milky traces may appear right after film application. This phenomenon is completely normal. These traces fade and disappear naturally after one week.*

4.6. Solving application problems:

4.6.1. In the case of bad film unwinding:

› During a wind-up application, the film roll and the liner may unwind independently one from the other. (FIG. 24)

Figure 24

⚠️ *In such a case, the film unwinding operation must be stopped immediately. By complying with the following instructions, the liner can then be removed without damaging the building film.*

› Remove the liner from the surface of the applied film (cf. paragraph 4.3. Removing the liner: page 8) up to the roll to eliminate the tension difference between the liner and the film. Then pull the liner downwards and towards yourself while unrolling the film until total withdrawal of the liner. (FIG. 25)

Figure 25

⚠️ *Caution: prevent the liner coming into contact with the adhesive-coated side of the film.*

4.6.2. Removing soiling between the window and the film:

If there is any soiling (piece of liner, fabric fibre, coarse dust, etc.) between the film and the window, it must be removed.

› Moisten the film and gently peel it off from the glass. (FIG. 26)

Figure 26

Advice: it is possible to use with caution the tip of a cutter blade in order to peel off the film angle.

Figure 27

› Spray soapy water on the adhesive-coated side of the film. (FIG. 27)

› Remove any soiling with your finger while taking care of not polluting the film.

Figure 28

› Position the film again and apply it with the squeegee. (FIG. 28)

5. SIDE-BY-SIDE FILM APPLICATION:

For large-scale glazing covering projects (glass pane larger than the width of the film), several film lengths must be placed side by side horizontally or vertically.

5.1. Edge-to-edge:

The edge-to-edge application method should be used when the films have clean, sharp and straight factory cuts or width edges.

HEXIS tip: This method is the simplest to implement.

› Once the first length of film has been applied, wet the glass to be covered with soapy water.

› Carefully position the second width edge-to-edge, then remove the liner.

› Apply the second width as indicated in the paragraph 4.4: Setting the film position.

5.2. By overlapping and then carrying out a wallpaper cut:

The overlapping application method, followed by a wallpaper cut, should be used when the edges of the film widths are damaged, dirty or uneven.

› Once the first width of film has been applied, spray soapy water on the glass to be covered and on the edge of the first adjacent width.

› Using the tip of a cutter blade, gently lift one of the corners of the first width adjacent to the glass to be covered.

› Continue separating the edge of the film along its entire length while wetting the seam with soapy water.

› Then place the second film width on the glass by overlapping the first by approximately 15 mm.

› Peel off the liner.

› Apply the second film width as indicated in the paragraph 4.4: Setting the film position.

⚠ *Do not apply the film overlapping as there is a risk of not being able to remove the surplus.*

› Place the ruler in the centre of the overlapping area and along its entire length.

› After having broken the stainless-steel blade of the CUTVITRE, carry out a wallpaper cut through both layers of film in a continuous movement, by applying even pressure without damaging the glass and by using the ruler as support.

   Caution: excessive pressure may scratch the window pane during cutting. HEXIS cannot be held responsible for any damage and degradations caused to the substrate during film cutting. It is the responsibility of the installer to take all the necessary precautions during this operation.

› Gently remove any excess film.

› Re-wet the films at the seam and apply them with the SHAGMITCH squeegee, following the splice to remove any application liquid.

› The application is complete.

6. EDGE SEALING VARNISH:

It is mandatory to apply a marine sealing varnish to the edges of the films: SHIELD, CLIMATE40, CLIMATE45 and to all films applied outdoors.

⚠ *Sealing is very important as it strengthens the lifespan of the films and prevents oxidation of the film's inner metal layers. Thus air, natural or industrial pollution, stagnant water from rain and others will no longer be able to attack the metallisation of the films starting from their edges.*

› Ensure that all surfaces are completely dry.

› Apply the marine sealing varnish to the entire film + glazing edges.

7. CLEANING AND MAINTENANCE OF THE FILM:

› Leave the film to dry for 1 week without touching it.

⚠ *After application, wait for 30 days before cleaning the "film-coated" window.*

› Clean the "film-coated" glass with a standard cleaning agent and a soft cloth.

⚠ *Using abrasive tools (scrapers, scouring pads, etc.), solvents and corrosive detergents must be avoided by all means.*

HEXIS tip: Always test on a small area before cleaning the entire covered surface to insure the non-deterioration of the film by the liquids.

⚠ *HEXIS are not liable for any building window films cleaned with unspecified additives.*

8. REMOVAL PROCEDURE:

The decorative films feature a permanent adhesive and therefore their removal could be difficult. Nevertheless, by following the instructions below, the removal will be relatively easy.

8.1. Dry removal:

If possible, remove the film by hand in one piece as follows:

› Gently lift a corner of the film using a cutter, without damaging the substrate, then pull steadily until the film is completely removed.

8.2. Removal with soapy water:

If the film is old or tears into small pieces, remove it using soapy water as described below:

⚠ *Removing permanent adhesive with soapy water leaves sticky, gelatinous residues. It is therefore advisable to protect the base of the glazing beads and the floor against water and adhesive drips before removing the film.*

› Wet the window directly with a soapy solution (7 to 8 pumps of HEXISOAP solution per litre of water).

› Scrape the film and adhesive with SCRUBFLOOR by making semi-circular arcs (insert 2 to 3 cm of the blade under the film to make removal easier).

› Once the window has been scraped, wet it again and use LAMEVITRE to finish cleaning it.

⚠ *Caution: Liquids may damage seals; therefore, take the necessary precautions before performing the clean-up.*

⚠ *Before using any of our liquids, please refer to the technical data sheets available on our website at www.hexis-graphics.com.*

For further technical information, please refer to the Technical Data Sheets available for free download from our website *www.hexis-graphics.com* on the "Professionals" pages.

Due to the great variety of substrates and the growing number of new applications, the installer must check the suitability of the medium for each application. None of the information constitutes however a binding guarantee. The seller cannot be held liable for indirectly related damages and assumes no liability for claims that are higher than the replacement value of the purchased product. All specifications are subject to potential changes without prior notice. Our specifications are automatically updated on our website *www.hexis-graphics.com.*

www.**hexis-graphics**.com