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General Information

Reflexite® V98 Conformable Graphic Sheeting (hereto referred to as V98) is a tough, weather and solvent resistant product designed for graphics applications on vehicles. It is easy to apply to smooth painted or unpainted surfaces. For more information, please reference the Technical Product Bulletin, available on www.reflexiteamericas.com or upon request.

BEFORE APPLICATION

STEP 1: TEMPLATING

Reflexite V98 is a vinyl based reflective film that conforms easily to curves, however its use should be limited to minor curves only. Complex curves can be avoided by templating smaller pieces that will be butt jointed giving the appearance of one single piece.

STEP 2: CUTTING

Manual cutting

The material can be easily cut with a sharp knife or a rotary trimmer. When using a knife, hold the knife at an angle of 45 degrees from the surface. This leaves the tape with a slightly recessed edge, which prevents lifting of the edge during mechanical or power washing. Cutting on the vehicle is not recommended.

Plotter cutting

In general less pressure is needed when cutting V98 in comparison with other Reflexite graphic films such as V97 Daybright®. Below are suggestions of parameters to be used with selected equipment.

Equipment: Zünd 1600XL

Non fluorescent V98	Pressure – 450 grams (cutting through liner)
Fluorescent V98	Pressure – 550 grams (cutting through liner)

Equipment: Gerber P2C 1600

Non fluorescent V98	Pressure – 360 grams, 2 passes (not cutting through liner)
Fluorescent V98	Pressure – 360 grams, 2 passes (not cutting through liner)

The above equipments and settings are suggestions based on Reflexite's laboratory tests and field use; there are a number of satisfactory plotters on the market that are not listed among our recommendations. The user should test the chosen equipment for the best parameters to be used.

Edge Sealing After Cutting

This is not necessary after cutting, as the film is not an open cell structure material.

Tape Corners

It is recommended that where possible, square edges and Chevron tips be rounded to give improved cosmetics and to minimize the risk of corners being lifted by mechanical and power washers. The minimum recommended radius is 5 mm.



STEP 3: SUBSTRATE PREPARATION

The user is responsible for determining whether the Reflexite® product is fit for a particular purpose and suitable for the user's application. **Users are urged to carefully evaluate substrates for material adhesion and compatibility.** Listed below are guidelines for selected substrates. Material failures caused by the substrate or improper surface preparations are not the responsibility of Reflexite.

Two-part Polyurethane Paints

Two-part polyurethane paints must be cured before applying the Reflexite V98 sheeting. If the paint is not properly cured, outgassing will cause bubbles to form under the applied material and the adhesive will not adhere adequately. Reflexite recommends testing for outgassing prior to applying the Reflexite sheeting. For drying times, paint manufacturers' guidelines are to be followed in all instances. While most paints are usually touch-dry within a few hours, dependent upon the primer, paint mixture and thickness, proper curing may take significantly longer.

GRP (Glass Reinforced Plastics) and/or gelcoated surfaces

Similar guidelines to the above will apply for composite materials such as GRP substrates and/or gelcoated surfaces, in that the substrate must be properly and fully cured before applying, otherwise outgassing may result.

Stainless Steel

Reflexite V98 sheeting is not recommended for use on stainless steel.

Outgassing Plastics

Polycarbonates, polypropylene copolymers and other plastics can interact with the environment absorbing or outgassing moisture, or outgassing processing aids and solvent carriers for additives, which might cause the formation of bubbles on the film. Preliminary tests are essential to ensure that no adverse effects arise from this interaction.

STEP 4: SURFACE CLEANING

Successful adhesive bonding always starts with surface preparation. To achieve a strong and permanent bond, it is important to remove all contaminants so as to provide a smooth, clean and dry surface before applying the adhesive. The surface must be **thoroughly** cleaned of all grease, road film and any other materials that will affect the adhesive bond. Use a clean cloth with isopropyl alcohol to wipe the surface in one direction only to avoid spreading contamination. Best results are achieved by removing old paint chips, burrs, etc.

STEP 5: APPLICATION TEMPERATURE

The recommended application temperature range to achieve the best results is between 60°F and 100°F. Ensure both substrate and film are at the optimum temperatures. In cold climates surfaces should be warmed in order to achieve optimum substrate temperatures. Applying the material in hot environments can cause the film to stretch more easily.

APPLICATION



STEP 6: CHOOSING WET OR DRY METHOD

Reflexite recommends either the wet or dry method to apply the V98 sheeting. If the wet method is used it's essential that attention is given to ensuring excess water is removed and the edges are re-squeegeed.

For more information on the dry method, please refer to Annex 1.
For more information on the wet method, please refer to Annex 2.

NOTE! It is important not to touch the adhesive side of the material during application.

Application & Care

Reflexite® V98 Conformable Graphic Sheeting

For EMS Vehicle Graphic Applications
RSA2340



DO's & DON'T's

Concave surfaces

Reflexite V98 sheeting can be applied on some complex curves (surfaces bending in two directions). However its use should be limited to minor curves only.

Butt Joints

When more than one piece of reflective material is required to form a continuous marking on a substrate, pieces should be butt jointed and not overlapped onto one another.

Application to corners / edges

The material should not be applied around corners or edges (e.g. door edge, wheel arch etc). Instead it should be cut back ¼" in front of the edge.

Application of reflective sheeting over reflective sheeting

Reflexite does not recommend applying any reflective sheeting (e.g. Reflexite® V98 or Reflexite® V92 / V97 Daybright®) over the sheeting to create a chevron effect or lettering. This practice violates the warranty.

Application of reflective sheeting over vinyl

Reflexite does not recommend applying the V98 over vinyl sheeting. This practice violates the warranty.

Heat application

Do not use any source of heat to make the V98 sheeting conform to curves. Heat should only be used when applying Chevron markings (see Annex 3 for details).

Chevron

Please refer to Annex 3 for recommendations on the application of Chevrons.

Storage of Material

Tape rolls should be stored tightly wound in the box supplied when not in use, sitting on waxed paper at each end of the roll. This prevents dirt / particles sticking to the tape edges and protects the roll. Material should be stored in a cool, dry area, preferably at room temperature (65-85°F).

Kit material should not be stored face to face. It is recommended to store cut kit material with siliconized slip-sheets in between for protection and to avoid material face to face contact, either folded inwardly or outwardly particularly when stacked and stored.

AFTER APPLICATION

Bonding Time

It is recommended that the vehicle is kept at temperatures between 60°F to 100°F for 24 hours to allow the adhesion to build up between the substrate and material before putting the vehicle into service.

Painting after application

Reflexite does not recommend painting on or close to the reflective sheeting after it has been applied to the vehicle. This practice violates the warranty.

Cosmetics

The manufacturing process results in a thin "weld line" that appears across the width of the material/tape approximately every 9". This is not a manufacturing flaw and the material cannot be supplied without these lines. For the same reason, an exceptionally thin line may occasionally be seen running the length of the tape/material. This is virtually invisible to the naked eye, when viewed from one yard (3 ft) away.

REMOVAL

When removing V98 sheeting in order to repair damage or de-commission vehicles, it is recommended that the tips in Annex 4 be followed.

CARE INSTRUCTIONS

Reflexite V98 sheeting can be washed manually by brush, cloth or sponge using water, soap or detergent followed by a clean water rinse. If an automatic truck / car wash or standard high-pressure hand spray is used, please follow these recommendations:

- Maximum pressure – 1200 PSI / 80 bar
- Maximum water / wash solution 140° F
- 40° Nozzle cone opening size should be used
- Cleaning wand or jets to be at no greater angle than 45° from perpendicular to the marking surface
- Hold the cleaning jet a minimum of 24" away from the material

When using cleaners/degreasers, make sure the product is suitable for vehicles and follow the manufacturer's recommendations for dilution. Thoroughly rinse after soaking the vehicle. Prolonged exposure to cleaners/degreasers can in some circumstances have a negative affect on the material. Prolonged exposure in combination with sunlight can reinforce this negative effect.

Do not use solvents to clean the film, as they can adversely affect the product. If soap or detergent does not sufficiently clean the film, **gently** rub the film with a cloth soaked in isopropyl alcohol to remove the stains.

Important: The suitability of the intended care process must be determined by the end user.

IMPORTANT NOTICE

All Reflexite products are subject to careful quality control throughout the manufacturing process and are warranted to be of merchantable quality and free from manufacturing defects.

Published information concerning Reflexite products is based upon research which the Company believes to be reliable although such information does not constitute a warranty.

Because of the variety of uses of Reflexite products and the continuing development of new applications, the purchaser should carefully consider the suitability and performance of the product for each intended use, and the purchaser shall assume all risks regarding such use.

All specifications are subject to change without prior notice.

ANNEX 1 – Dry Method

After properly preparing and cleaning the substrate, the following items will be necessary to apply the material using the dry method:

- Squeegee with a soft side or a cloth/squeegee sleeve to avoid scratching the film
- Masking tape
- Pair of scissors

Step 1. Position the piece to be applied on the vehicle, with liner still attached, and keep it in place with masking tape securely holding the piece at the top end. Place masking tape so that half the masking tape is on the piece and half will be in contact with the surface. It will serve as a hinge during the application. Ensure that the piece is in the exact desired position.



Step 2. Remove the liner and squeegee piece into place.

NOTE! It is important to avoid touching the adhesive side of the material, particularly the edges, during application.

NOTE! If repositioning the piece is necessary, it should be done **carefully**. Slowly pull back the Film at 90° angle. The film can stretch if pulled too hard or too fast causing damage to the reflectivity as well as registration failures.

Step 3. Remove masking tape and the re-squeegee all edges.



NOTE! Application of Chevron markings requires specific techniques. See Annex 3 for details.



ANNEX 2 – Wet Method

After properly preparing and cleaning the substrate, the following items will be necessary to apply the material using the wet method:

- Squeegee with a soft side or a cloth/squeegee sleeve to avoid scratching the film
- Application fluid
- Marker pen

The application fluid can be a mixture of 98-99 parts water and 2-1 parts liquid soap. Readily available solutions may also be used. It is the user's responsibility to evaluate the suitability of the application fluid chosen.

Step 1. With a marker pen, mark the position where the piece will be applied.

Step 2. Remove the liner from the reflective film starting at one corner and pulling up.

NOTE! Avoid touching the adhesive side of the material, particularly the edges, during removal of liner.

Step 3. Lightly spray the adhesive side of the film as well as the surface to be applied. Apply the wet film to this surface. The moisture allows for easier positioning.

Step 4. Using a squeegee, burnish out the soap and water solution working from the middle in all directions. Wipe away any excess water and allow time to dry, usually 10 minutes or less depending on air and surface temperature, as well as humidity level.

NOTE! If the film/lettering has masking paper or application tape on top of its surface, remove masking (application tape) by folding a top corner and slowly pulling back, flat against the surface.
DO NOT PULL OUTWARD – this could cause letters to lift if not sufficiently dry.

Step 7. Gently wipe off the alignment marks and allow the film to dry thoroughly for a few days before washing or waxing this part of the vehicle. If an air bubble exists after squeegeeing, puncture with the corner of a razor or pin and squeegee to the edge.

Step 8. After completing this process, re-apply pressure to the edges with a squeegee.

ANNEX 3 – Chevron Application

After properly preparing and cleaning the substrate, the following recommendations should be followed when applying Chevron markings:

Templating

Sharp tips are more likely to lift during power washing and should therefore be avoided. **Tips should be rounded** for improved cosmetics and adhesive performance.



Application

When removing the liner and squeegeeing the film, it is essential not to touch the adhesive side, **especially the edges**, as it can contaminate and weaken the adhesive where touched and consequently cause a weak bond to the vehicle surface.

After application, with a hot air gun **gently heat the Chevron tips** (approx 95°F) for a few seconds and re-squeegee all edges to ensure a strong bond.



ANNEX 4 – Removal

When the need arises to remove the Reflexite V98 sheeting, the following tips will be useful.

- Keep the angle of removal perpendicular (90°) to the surface and pull at a moderate speed. If the angle is more or less, there is greater chance the adhesive will transfer from the sheeting to the working surface.
- At temperatures below approximately 65°F there is greater chance of adhesive transfer from the sheeting to the working surface, e.g. painted metal. In such cases a heat gun may be used to gently warm the adhesive. Optimum temperature will be approximately 95°F. Softening the adhesive will make it less aggressive. Warm the area in a circular pattern and be careful not to leave the heat source in one spot for too long. It could melt the adhesive causing it to release from the sheeting, or worse, damage the painted finish below. Note: removal at warmer temperatures increases the potential for adhesive transfer to the working surface. With the surface warm, use a wooden applicator or similar (one that will not scratch the working surface) to gently lift the edge of the material and continue to peel the sheeting at moderate speed.
- Once the graphic is removed, there may be adhesive residue left behind on the working surface. The residue can often be removed using packing tape or duct-tape. With a repeating motion, dab the adhesive residue with the adhesive side of the packing or duct-tape to pull off the residue.
- Leftover adhesive residue may also be removed with clean-up solvents and adhesive removers. Before use, always review the manufacturer's MSDS and test the surface in an inconspicuous area for compatibility.

Due to the enormous variety of paint systems and substrates, Reflexite cannot guarantee the V98 sheeting will be cleanly removed from the working surface.