

# Practical Information: ORALITE® V98 Conformable Graphic Sheeting

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## General Information

ORALITE® V98 Conformable Graphic Sheeting (hereto referred to as V98) is a tough, weather and solvent resistant product designed for graphics applications on vehicles with smooth painted or unpainted surfaces.

## Templating

ORALITE® V98 is a vinyl based microprismatic reflective film that conforms easily to curves; however its use should be limited to minor curves only. Complex curves should be avoided by templating smaller pieces.

## Cutting

### Manual Cutting

The sheeting 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 to help prevent lifting of the edge during mechanical washing or power washing. Cutting on the vehicle is not recommended.

### Plotter Cutting

Below are suggestions for process conditions on select equipment.

#### Zünd 1600XL

Non-Fluorescent	450 grams (cutting through liner)
Fluorescent	550 grams (cutting through liner)

#### Gerber P2C 1600

Non-Fluorescent	360 grams, 2 passes (not cutting through liner)
Fluorescent	360 grams, 2 passes (not cutting through liner)

The above equipment and settings are suggestions based on ORAFOL Americas'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

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

## Sharp Points and Corners

It is recommended that where possible, square edges and Chevron tips be rounded to improve cosmetics and to minimize the risk of corner lifting during mechanical washing and power washing. The minimum recommended radius is 5 mm or 3/16".

## Substrate Preparation

The user is responsible for determining whether ORALITE® V98 is suitable for the 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 ORAFOL Americas, Inc.

### Two-part Polyurethane Paints

Two-part polyurethane paints must be fully cured before applying the ORALITE® V98 sheeting. If the paint is not properly cured out-gassing will cause bubbles to form under the applied material. ORAFOL recommends testing for out-gassing prior to applying the ORALITE® 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.

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## 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. The substrate must be properly and fully cured before application.

## Stainless Steel

ORALITE® V98 sheeting is not recommended for use on stainless steel.

## Diamond Plate

ORAFOL recommends the use of pre-cut V98 shapes specifically designed for application to the recessed areas of diamond plate substrate. ORALITE V98 is not designed for 100% full coverage application over diamond plate substrate.

## Out-gassing Plastics

Polycarbonates, polypropylene copolymers and other plastics can interact with the environment absorbing and/or out-gassing moisture, or out-gassing processing aids and solvent carriers from 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.

## Surface Cleaning

Successful adhesive bonding always starts with surface preparation. To achieve a strong and permanent bond, it's important to remove all contaminants such that the surface is smooth, clean and dry before application. 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.

## Application Temperature

The recommended application temperature range to achieve the best results is between 60°F and 100°F. Both substrate and sheeting should be in the optimal temperature range. In cold climates surfaces should be warmed prior to application.

In warmer environments the ORALITE® V98 sheeting can stretch easier during application. Care should be taken during application at warmer temperatures to avoid stretching the sheeting which may damage the reflective performance and reduce the adhesives bond performance.

## General Application

Step 1: Position the templated piece on the vehicle with the liner still attached. Attach the piece to vehicle surface with masking tape along the top edge. Place the masking tape such that half the masking tape is on the piece and half will be in contact with the surface. The tape will serve as a hinge during the application. Ensure that the template piece is in the exact desired position.

Step 2: Remove the liner and squeegee the piece into place. Avoid touching the adhesive side of the material, particularly the edges, during application.

If repositioning the piece is necessary, it should be done carefully. Slowly pull back the film at a 90° angle. The film can stretch if pulled too hard or too fast.

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



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## Chevron Application

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

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

The minimum recommended radius is 5 mm or 3/16".

When removing the liner and squeegeeing the film, it's essential not to touch the adhesive, especially the edges. Contamination can weaken the adhesive where touched and consequently cause a weak bond.

After application use a hot air gun to gently heat the chevron tips (approx 95°F) for a few seconds then squeegee all edges again to ensure a strong bond.



## DO's & DON'T's

### Concave Surfaces

ORALITE® 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. Overlapping joints is not recommended.

### Application to Corners & Edges

The material should not be applied around corners or edges (e.g. door edge, wheel arch) as is typically done with cast car wrap graphics. The ORALITE V98 should be cut back at least 1/4" from all edges.

### Layering

ORAFOL Americas does not recommend the application of any reflective sheeting (e.g. ORALITE® V92 or V98) over ORALITE® V98 sheeting to create a chevron effect or lettering. This practice voids the Warranty.

Application of ORALITE V98 over vinyl sheeting is not recommended. This practice voids the Warranty.

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## Heat Application

ORALITE® V98 is not designed for application with a heat source. Do not use any source of heat to make the V98 sheeting conform to curves. Heat should only be used when applying Chevron markings.

## Material Storage

Tape rolls should be stored tightly wound in the original box when not in use, sitting on waxed paper at each end of the roll. The wax paper will prevent dirt and particles from sticking to the tape edges. The material should be stored in a cool, dry area, preferably at room temperature (65-85°F).

## **After Application**

### Bonding Time

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

### Painting after Application

ORAFOL Americas 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 feet) away.

## **Removal Tips**

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 vehicle surface, e.g. painted metal. In such cases, a heat gun may be used to soften the adhesive. Warm the area in a circular pattern being careful not to leave the heat source in one spot for too long. Excessive heat can burn the sheeting or melt the adhesive causing it to release from the sheeting. Excessive heat may also damage the substrate or painted finish.

Note that removal at elevated 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 SDS and test the surface in an inconspicuous area for compatibility.

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

## Care Instructions

ORALITE® 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

During the actual cleaning process, the power washer wand or jets should 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 and degreasers can in some circumstances have a negative effect on the material. Prolonged exposure in combination with sunlight can exacerbate this 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 ORALITE® 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 ORAFOL Americas Inc. 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 ORALITE® 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.

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