

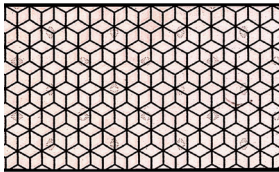
## Description

ORALITE® VC 170 Universal Film is a tough weather resistant product designed for rugged outdoor use. The material is die cuttable and plotter cuttable, and easy to apply onto smooth painted or unpainted surfaces.

## Product Construction

ORALITE® VC 170 Universal Film is composed of cube corner (microprism) retroreflective elements integrally bonded to a flexible, smooth-surfaced tough and weather resistant UV stabilised polymeric film. The prism surfaces are coated with a vacuum deposition of aluminium to provide a mirror surface to the prism facets. The resulting material is not more than 0,20 mm thick, and comes with an aggressive high-tack pressure sensitive adhesive. The product is single layer, with no need for edge sealing.

## Film Logo Pattern



## Colour

ORALITE® VC 170 Universal Film is available in white, yellow and red colours. The colour shall be located in the area defined by the chromaticity coordinates and luminance factor provided in Table 2, when measured in accordance with the provisions of CIE No.15.2. The four pairs of coordinates determine the acceptable colour when measured with standard illuminant D<sub>65</sub> using a Hunter LabScan.

## Retroreflectivity

When illuminated with CIE standard illuminant A and measured with the provisions of CIE No. 54, typical coefficients of retroreflection for ORALITE® VC 170 Universal Film are provided in Table 1 when rotation angles of 0° and 90° are measured and averaged.

## Impact Resistance

ORALITE® VC 170 Universal Film sheeting shall show no signs of cracking or delamination outside the actual area of impact when it is subjected to an impact of 1,13 N·m generated by a 0,91 kg weight with a 16 mm rounded tip, as per ASTM D4956.

## Adhesive

The adhesive is protected by a release liner, which shall be removed by peeling, without soaking in water or other solvents. A 25 mm strip shall provide a bond such that it shall support a 800 g weight for 5 minutes without the strip peeling for a distance of more than 50 mm when applied to a smooth aluminium surface as specified in the ASTM 4956 adhesion test. ORALITE® VC 170 Universal Film may be used on stainless steel when used with the correct pressure sensitive adhesive, which should be requested when ordering.

## Flexibility

The sheeting is conditioned for 24 hours at 22° C and 50% RH. The release liner is removed and the sheeting must be sufficiently flexible to show no cracking when bent in one second's time around a 3,1 mm diameter mandrel with the adhesive contacting the mandrel.

## Application Instructions

Material must be applied when the film and substrate temperature is between 15° C and 38° C to assure proper adhesive bonding. Surfaces must be cleaned for all grease, oil and dirt. Use a clean towel and Isopropyl alcohol or similar to wipe the surface before application. If any air bubbles are trapped, use a pin to puncture the bubble and squeegee to push the air towards the pin hole.

Please contact ORAFOL for complete application instructions.



## Product Size

The product is available in standard roll widths of 610 mm and 1235 mm. Please contact ORAFOL for additional sizes.

## Shelf Life

The sheeting must be used within 1 year from the shipment date. All rolls including partially used rolls should be stored in original packaging, tightly wound. Store in a clean and dry area, away from direct sunlight. Store at 20° C and 50% relative humidity.

**Table 1**  
**Retroreflectivity (Typical Values)**

Observation Angle	Entrance Angle ( $\beta$ )					
	Beta 1 ( $\beta_1$ )	0°	0°	0°	0°	0°
20' (0,33°)	Beta 2 ( $\beta_2$ )	5°	20°	30°	40°	60°
White	R'	450	n/a	200	95	16
Yellow	R'	300	n/a	130	75	10
Red	R'	120	60	30	10	n/a

All values have units of cd/lux/m<sup>2</sup>.

**Table 2**  
**Colour Specification Limits (Daytime)**

Colour	Chromaticity Coordinates*							
	1		2		3		4	
	x	y	x	y	x	y	x	y
White	0,300	0,270	0,385	0,355	0,345	0,395	0,260	0,310
Yellow	0,545	0,454	0,487	0,423	0,427	0,483	0,465	0,534
Red	0,690	0,310	0,595	0,315	0,569	0,341	0,655	0,345

\*) The four pairs of chromaticity coordinates determine the acceptable chromaticity when measured with standard illuminant D65 using a Hunter LabScan.

## IMPORTANT NOTE

All ORAFOL products are subject to careful quality control throughout the entire manufacturing process, and it is ensured that they are of merchantable quality and free from manufacturing defects. The information published is based on our analyses and studies and does not constitute any warranted properties or any agreement as to quality. Due to the diverse possibilities of use of ORAFOL products and the constant development of new applications, the buyer should carefully consider the suitability and performance of the product for the respective purpose; it bears all risks associated with such use. No warranty is given for purposes other than those listed in the Technical Data Sheet or for applications that are not processed in accordance with ORAFOL's processing instructions.

The durability of the end product depends upon a variety of factors, including but not limited to substrate selection and preparation, compliance with the recommended application guidelines, geographical area, exposure conditions and maintenance of the ORAFOL material and of the end product. Product defects caused by the substrate or improper surface preparation do not lie within ORAFOL's sphere of responsibility.

When using ORAFOL products, the pertinent national regulations are to be observed. ORAFOL recommends that you obtain the current stipulations from your local authority and ensure that the product meets these requirements. Please contact ORAFOL for further information.

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