

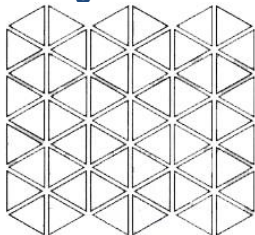
Description

ORALITE® VC 612 Flexibright™ is a tough weather resistant product designed for rugged outdoor use for livery applications on emergency services vehicles. The material is die cuttable and plotter cuttable, and easy to apply onto smooth painted or unpainted vehicle surfaces. The material does not need edge sealing, and is designed to be especially applicator user friendly and flexible, with potentially single piece removability and the possibility to template to far fewer pieces than other prismatic livery films.

Product Construction

ORALITE® VC 612 Flexibright™ 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 0.35-0.45 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



Retroreflectivity

Typical values for the coefficient of retroreflection (R') for ORALITE® VC 612 Flexibright™ are shown in Table 1 when illuminated with CIE standard illuminant A and measured with the provisions of CIE no. 54. The values are an average of rotation angles 0° and 90°.

Colour

ORALITE® VC 612 Flexibright™ is available in silver, yellow, red, blue, green, fluorescent lime, fluorescent yellow and fluorescent orange. 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 (illuminant D₆₅).

Impact Resistance

ORALITE® VC 612 Flexibright™ 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.

Shrinkage

A 230 mm square specimen of the sheeting with liner shall be conditioned a minimum of 1 hour at 22° C and 50% RH. The liner is then removed and the specimen is placed on a flat surface with the adhesive side up. 10 minutes after the liner is removed and again after 24 hours, then specimen is measured to determine the amount of dimensional change. The specimen must not shrink in any dimension more than 0,8 mm in 10 minutes and 3,1 mm in 24 hours.

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 air and surface temperature is between 10° C and 28° C to assure proper adhesive bonding. Surfaces must be cleaned for grease, oil and dirt. Use a clean towel and Isopropyl alcohol to wipe the surface before application.

Please contact ORAFOL for complete application instructions.

Solvent Resistance

ORALITE® VC 612 Flexibright™ material meets the solvent resistance requirements of LS-300C solvent resistance, section 3.6.7, when tested as specified in Table VI, test method 4.6.6.

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

Obs. Angle	Entr. Angle	White	Yellow	Green	Red	Blue	Fl.lime	Fl. yellow	Fl. orange
0,20°	5°	750	525	130	130	55	420	295	200
	30°	375	260	65	65	25	200	145	100
	45°	120	85	20	20	8	70	45	30
0,33°	5°	375	260	65	65	25	200	145	100
	30°	185	130	32	32	13	100	75	50
	45°	60	40	10	10	4	35	25	20
0,50°	5°	110	80	20	20	8	65	45	45
	30°	60	45	10	10	4	33	23	20
	45°	20	14	4	4	1.3	10	7	8
1,00°	5°	28	20	5	5	2	15	11	8
	30°	14	10	2	2	1	8	5	4
	45°	4	3	-	-	-	2	2	2

All values have units of cd/lux/m².

Table 2 - Colour Specification Limits (Daytime)

Colour	Chromaticity Coordinates*									
	1		2		3		4		Y%	
	x	y	x	y	x	y	x	y	Min.	Max.
Silver	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27.0	----
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	15.0	45.0
Green	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	3.0	9.0
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	12.0
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1.0	10.0
Fluorescent lime	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60.0	----
Fluorescent yellow	0.460	0.540	0.428	0.496	0.395	0.515	0.415	0.560	40.0	----
Fluorescent orange	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355	20.0	25.0

*) The four pairs of chromaticity coordinates determine the acceptable chromaticity when measured with standard illuminant D65

Physical and Chemical Properties

Thickness¹ (without protective paper)	0.300 mm (non-fluorescent colours) 0.400 – 0.450 mm (fluorescent colours)
Temperature resistance	adhered to aluminium, -40° C to +82° C (-40° F to 180° F)
Resistance to cleaning agents	adhered to aluminium, 8h in solution (0.5% household cleaning agents) at room temperature and 65° C (150° F): no variation
Adhesive power¹ (FINAT-TM1 after 24h, stainless steel)	>15 N/25 mm (1 inch)
Shelf life²	1 year
Application temperature	> +15° C
Service life by specialist application³ under vertical outdoor exposure	Up to 7 years (non-fluorescent colours) Up to 7 years (fluorescent colours)

¹ average ² in original packaging, at 20°C and 50% relative humidity ³ standard central European climate,
Please refer to the document Practical Information ORALITE® VC 412RA Ecoflex / VC 612 / VC 612RA Flexibright / VC 612 Fleet Marking Grade for all regions

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 ORALITE® 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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