

Description

ORALITE[®] High Performance Roll-Up Signs are flexible Roll-Up sign blanks made from reinforced microprismatic retroreflective sheeting. These sign blanks are suitable for fabrication of retroreflective Roll-Up signs used for construction and maintenance, utility and incident management applications. All ORALITE[®] Roll-Up signs are designed to meet the requirements of the Manual on Uniform Traffic Control Devices (MUTCD).

Product Construction

ORALITE[®] High Performance Roll-Up Signs consist of a high gloss, transparent, uv-stabilized microprismatic retroreflective layer bonded to a heavy-duty fiber-reinforced vinyl material. The Roll-Up sign provides high brightness and long-term color and fluorescence retention. This construction will not delaminate and provides outstanding durability, legibility, and long sign life.

Reflectivity

ORALITE[®] High Performance Roll-Up Signs shall have the minimum coefficient of retroreflection shown in Table 1 when tested in accordance with ASTM E810, "Standard Test Method for Coefficient of Retroreflection of Retroreflective Sheeting Utilizing the Coplanar Geometry".

Daytime Color

ORALITE[®] High Performance Roll-Up Signs conform to the daytime color requirements in Table 2 when tested in accordance with ASTM D4956. ORALITE[®] High Performance Roll-Up Signs are available in white, fluorescent yellow-green and fluorescent orange, which utilizes Marathon fluorescence.

Nighttime Color

ORALITE[®] High Performance Roll-Up Signs conform to the nighttime color requirements in Table 3 when tested in accordance with ASTM D4956 and ASTM E811. The sheeting shall be measured using CIE illuminant A, an observation angle of 0.33° and an entrance angle of +5°.

Wrinkle/Crush Resistance

ORALITE[®] High Performance Roll-Up Signs shall not exhibit signs of permanent creasing and/or crazing when tested with the following procedure: The sample shall be conditioned for 24 hours prior to testing at 73° ± 3°F (23° ± 2°C) and 50% relative humidity. Prepare a sample 6" x 12" (150 x 300 mm). Roll the sample, reflective face inward, into a cylinder that is 6" (150 mm) tall and approximately 2 1/2" (63 mm) in diameter. Place a rubber band around both ends to maintain the cylindrical shape. Raise the handle of the compactor to the upright position. Place the sample into the compactor. Pull the handle down with firm, even pressure, until the sample is fully compressed. Raise the handle and remove the compressed sample. Leave the handle in the down position between operations. Unfold the material and inspect the reflective appearance at a distance using a flashlight held at eye level.

Note: The apparatus used for this test is a recycling can crusher and is available at most hardware stores. This is a proposed standard test method designed to simulate the severe folding, creasing, and other abuse seen in the real world. If such a device is unavailable, rolling the material, folding the cylinder in half, and then creasing the material by stepping/standing on it will produce similar results.

Flexibility

ORALITE[®] High Performance Roll-Up Signs meet the flexibility requirements of ASTM D4956, section 6.7 and S2.2.2. They are sufficiently flexible such that through continuous use, setup and storage, the signs do not show any permanent creasing or delaminating.

Solvent Resistance

ORALITE[®] High Performance Roll-Up Signs will not dissolve, blister, or pucker when wiped with a soft cloth wet with kerosene, mineral spirits, turpentine, VM&P Naphtha, 5% HCL NaOH, or methanol.

Specular Gloss

ORALITE[®] High Performance Roll-Up Signs shall have a specular gloss of not less than 40 when tested in accordance with ASTM D523 at an angle of 85°.

Impact Resistance

Ambient Temperature: After conditioning a sample of sealed Roll-Up sign for 24 hours at 73° ± 3°F (23° ± 2°C) and 50% relative humidity, subject the sheeting to an impact of a 4 lb (1.82 kg) weight with a 5/8" (16 mm) rounded tip dropped from a 100 in-lb (11.3 N-m) setting on a Gardner variable impact tester, IG-1120, as per ASTM D4956, section S2.2.1. The sheeting shall show no cracking or delamination outside the actual area of impact.



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Weatherability

ORALITE® High Performance Roll-Up Signs meet the requirements of ASTM D4956, Section 6.4. The material is weather resistant and shows no appreciable cracking, scaling, pitting, blistering, edge lifting, or curling, or more than 1/32" (0.8 mm) shrinkage or expansion. Retroreflectivity measurements are conducted after outdoor weathering with an observation angle of 0.20° and entrance angles of -4° and +30°. The minimum coefficient of retroreflection (R_A) after weathering is 50% of the values specified in Table 1.

Enhanced Surface Preparation

ORALITE® High Performance Roll-Up Signs have a unique Enhanced Surface Preparation (ESP), which eliminates the need for a thorough cleaning (e.g. alcohol wipe) prior to screen-printing. It is still good business practice to wipe the surface with a clean, dry tack cloth. Enhanced Surface Preparation allows the use of vinyl graphics using pressure sensitive adhesives. Also, Enhanced Surface Preparation reduces the amount of dust, dirt and other road grime that can stick to ORALITE® High Performance Roll-Up Signs.

Warranty

3 Year Limited Warranty. Contact your ORAFOL Americas representative for details.

Table 1, Coefficient of Retroreflection (R_A)*

Observation Angle	Entrance Angle	White	Fluorescent Orange	Fluorescent Yellow-Green
0.20°	-4°	500	200	400
0.20°	30°	200	80	160
0.50°	-4°	225	90	180
0.50°	30°	85	34	68

*all values have units of cd/ft^2 ($cd/lx/m^2$)

Table 2, Color Specification Limits (Daytime)

Color	Chromaticity Coordinates†								Luminance Factor (Y%)	
	1		2		3		4		Min.	Max.
	x	y	x	y	x	y	x	y		
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27	---
FI Orange	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355	20	---
FI Yellow Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	---

†The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with Standard Illuminant D65.

Table 3, Color Specification Limits (Nighttime)

Color	Chromaticity Coordinates‡							
	1		2		3		4	
	x	y	x	y	x	y	x	y
White	0.475	0.452	0.360	0.415	0.392	0.370	0.515	0.409
FI Orange	0.625	0.375	0.589	0.376	0.636	0.330	0.669	0.331
FI Yellow Green	0.480	0.520	0.473	0.490	0.523	0.523	0.440	0.449

‡ The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with Standard Illuminant A.

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.

WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

ORALITE® is a registered trademark of ORAFOL Europe GmbH.



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