

Description

ORALITE® 5935 Marathon™ Reboundable Sheeting is a tough, weather resistant, highly reflective, reboundable sheeting designed for rugged construction work zone use. It is ideal for the reflectorization of traffic control channelizers such as drums, cones, tubes and delineators. ORALITE® 5935 Marathon™ Reboundable Sheeting is easy to apply to smooth, flame-treated polyethylene substrates.

Product Construction

ORALITE® 5935 Marathon™ Reboundable Sheeting consists of a high gloss, transparent, uv-stabilized microprismatic retroreflective layer. The sheeting has a distinct identifying seal pattern (see picture).



Reflectivity

ORALITE® 5935 Marathon™ Reboundable Sheeting shall have the minimum coefficient of retroreflection (R_A) 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". ORALITE® 5935 Marathon™ Reboundable Sheeting fully meets or exceeds the requirements of ASTM D4956 for Type IV and VIII Work Zone sheeting materials.

Daytime Color

ORALITE® 5935 Marathon™ Reboundable Sheeting conforms to the daytime color requirements in Table 2 when tested in accordance with ASTM D4956 using a HunterLab ColorFlex. ORALITE® Marathon™ Reboundable Sheeting is available in white, fluorescent yellow-green and fluorescent orange.

Nighttime Color

ORALITE® 5935 Marathon™ Reboundable Sheeting conforms to the nighttime color requirements in Table 3 when tested in accordance with ASTM D4956 and ASTM E3165. The sheeting shall be measured using CIE illuminant A with an observation angle of 0.33° and an entrance angle of $+5^\circ$.

Adhesive

The adhesive is protected by a release liner which shall be removed by peeling, without soaking in water or other solvents. The adhesive produces a bond such that a 1" (50 mm) strip shall support a 1 3/4 pound (0.79 kg) weight for 5 minutes without the strip peeling for a distance of more than 2" (50 mm) when applied to a smooth aluminum surface as specified in the ASTM D4956, Section 7.5 adhesion test.

Impact Resistance

Ambient Temperature: After conditioning a sample of the sheeting for 24 hours at $73^\circ \pm 3^\circ\text{F}$ ($23^\circ \pm 2^\circ\text{C}$) 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.

Flexibility

ORALITE® 5935 Marathon™ Reboundable Sheeting meets the flexibility requirements of ASTM D4956, Section 6.7 and S2.2.2. The sheeting is sufficiently flexible to show no cracking when bent in one second time around a 1/8" (3.2 mm) diameter mandrel.

Weatherability

ORALITE® 5935 Marathon™ Reboundable Sheeting meets the requirements of ASTM D4956, Section 6.4. The material is weather resistant and shows no appreciable cracking, scaling, pitting, blistering, edge lifting, 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 $+30^\circ$. The minimum coefficient of retroreflection (R_A) after weathering is 80% of the values specified in Table 1.

When tested in a xenon-arc weatherometer in accordance with ASTM D4956, Section S3, ORALITE® 5935 Marathon™ Reboundable Sheeting will meet or exceed the weathering requirements. Upon request, one-year outdoor weathering data (NTPEP) are available.

Solvent Resistance

ORALITE® 5935 Marathon™ Reboundable Sheeting 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.



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Specular Gloss

ORALITE® 5935 Marathon™ Reboundable Sheeting shall have a specular gloss of not less than 40 when tested in accordance with ASTM D523 at an angle of 85°.

Shrinkage

A 9" x 9" (229 mm x 229 mm) specimen of the sheeting with liner is conditioned a minimum of one hour at 73° ± 3°F (23° ± 2°C) and 50% relative humidity. The liner is then removed and the specimen is placed on a flat surface with the adhesive side up. Ten minutes after the liner is removed and again after 24 hours, the specimen is measured to determine the amount of dimensional change. The specimen will not shrink in any dimension more than 1/32" (0.8 mm) in 10 minutes and 1/8" (3.2 mm) in 24 hours.

Table 1, Coefficient of Retroreflection (R_A)*

Observation Angle	Entrance Angle	White	Fl Yellow-Green	Fluorescent Orange
0.20°	-4°	700	560	210
0.20°	30°	325	260	95
0.50°	-4°	250	200	75
0.50°	30°	115	92	35
1.00°	-4°	42	33	12
1.00°	30°	32	25	10

*all values have units of cd/ft² (cd/lx/m²)

Table 2, Color Specification Limits (Daytime)

Color	Chromaticity Coordinates†								Luminance Factor (Y%)	
	1		2		3		4			
	x	y	x	y	x	y	x	y	Min.	Max.
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	27	---
Fl Yellow-Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	---
Fl Orange	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355	25	---

†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
Fl Yellow-Green	0.480	0.520	0.473	0.490	0.523	0.440	0.550	0.449
Fl Orange	0.625	0.375	0.589	0.376	0.636	0.330	0.669	0.331

‡ 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 may expose you to chemicals which are known in the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to – www.P65Warnings.ca.gov

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