

Description

ORALITE® R59 Rail Conspicuity Sheeting is highly reflective, weatherproof, self-adhesive sheeting with excellent corrosion and solvent resistance for the reflectorization of railcars and locomotives. ORALITE® R59 Rail Conspicuity Material comes with the visible FRA-224 certification mark, and meets the requirements of FRA-224 [49 CFR 224].

Product Construction

ORALITE® R59 Rail Conspicuity Sheeting consists of sealed cells of air backed microprisms, using total internal reflection. The distinct shape of the sealing identifies the machine direction and the manufacturer of the sheeting (see drawing).

Reflectivity

ORALITE® R59 Rail Conspicuity Sheeting shall meet and/or exceed 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® R59 Rail Conspicuity Sheeting fully meets and/or exceeds the requirements of FRA-224 [49 CFR 224, Table 1 of subpart B],

Daytime Color

ORALITE® R59 Rail Conspicuity Sheeting conforms to the daytime color requirements in Table 2 when tested in accordance with ASTM D4956. ORALITE® R59 Rail Conspicuity Sheeting is available in white and yellow.

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 such a bond 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

Following application to a smooth surface aluminum rectangle, 0.040" x 3" x 6" [1.01mm x 75mm x 150mm], the specimen is conditioned for 24 hours at 73° ± 3°F (23° ± 2°C) and 50% relative humidity, subject the sheeting to an impact of a 2 lb (0.91 kg) weight with a 5/8" (16 mm) rounded tip dropped from a 10 in-lb (1.13 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

The sheeting is conditioned for 24 hours at 72°F [23°C] and 50% relative humidity. The release liner is removed and the sheeting is sufficiently flexible to show no cracking when bent in one second's time around a 1/8-inch [3.2mm] diameter mandrel with the adhesive contacting the mandrel.

Weatherability

ORALITE® R59 Rail Conspicuity 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, 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 80% of the values specified in Table 1.

Solvent Resistance

ORALITE® R59 Rail Conspicuity Sheeting meets the requirements of LS-300C solvent resistance, section 3.6.7, when tested as specified in Table VI, test method 4.4.6.

Specular Gloss

ORALITE® R59 Rail Conspicuity 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 inch by 9 inch [229mm by 229mm] specimen of the sheeting with liner is conditioned a minimum of one hour at 72°F [23°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 inch [0.8mm] in 10 minutes and 1/8 inch [3.2mm] in 24 hours.



ORAFOL Americas – GA
1100 Oracal Parkway
Black Creek, GA 31308
Phone: 888.672.2251

reflective-americas@orafol.com

ORAFOL Americas – CT
120 Darling Drive
Avon, CT 06001
Phone: 800.654.7570

www.orafol.com

ORAFOL Canada
2831 Bristol Circle
Oakville, Ontario L6H 6X5
Phone: 888.727.3374

Application Instructions

It is recommended that the application temperature to achieve best results is 65°F [18°C] or above. The adhesive on ORALITE® R59 Rail Conspicuity Sheeting has been formulated to bond at temperatures as low as 32°F [0° C]. When bonding at low temperatures the surface should be free from ice, frost, condensation as well as any contaminants. For additional information please refer to the ORALITE® R59 Rail Conspicuity Sheeting Application Instructions.

Warranty

10 year limited warranty. Contact your ORAFOL Americas Inc. representative for details.

Table 1, Coefficient of Retroreflection† (R_A)

Observation Angle	Entrance Angle	White	Yellow
0.20°	-4°	600	400
	30°	350	220
0.50°	-4°	200	136
	30°	75	45

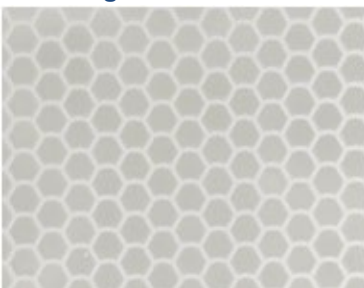
† Candelas/Lux/Square Meter

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	
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	15	45

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

Film Logo Pattern



Note:

All ORALITE® products are manufactured within an ISO 9001:2015 controlled manufacturing environment and batch traceability is possible on the basis of the roll number.

IMPORTANT NOTICE

When using ORALITE® sheeting, please comply with relevant national specifications. ORAFOL® recommends obtaining the current requirements from your local authority and ensure product conformance with such requirements. Please contact ORAFOL® for further information.

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

ORALITE® is a trademark of ORAFOL Europe GmbH



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