

## Product

Reflexite R99 Rail Conspicuity Material is a tough weather-and solvent-resistant product designed for rugged outdoor use on the sides and rear of rail cars, locomotives and all types of vehicles and equipment. It is easy to apply to smooth surfaces or to surfaces where tape must be cut around rivets and other design features. Reflexite R99 Rail Conspicuity Material comes with the visible FRA-224 certification mark.

## Construction

Reflexite R99 Rail Conspicuity Material is composed of cube corner (microprism) retroreflective elements integrally bonded to a flexible, smooth-surfaced, tough and weather-resistant UV-stabilized polymeric film. The prism surfaces are coated with a vacuum deposition of aluminum to provide a mirror surface to the prism facets. The resulting tape is not more than .008 inches thick and comes with an aggressive high-tack pressure-sensitive adhesive.

## Color

Reflexite R99 Rail Conspicuity Material is available in yellow and white. The colors conform to the requirements in the following table when tested in accordance with ASTM standards E1347 and E1349. The measured values are the average of eight readings. The test sample is rotated 45° about its own axis after each reading. See Table 1.

## Reflectivity

Reflexite R99 Rail Conspicuity Material shall meet or exceed the minimum coefficient of retroreflection shown below. Reflexite Conspicuity Material shall be measured in accordance with ASTM E810 and rotation angles of 0° and 90°. See Table 2.

## Adhesive

The adhesive is especially formulated to adhere to a variety of surfaces including fiberglass, aluminum, steel and painted metal. 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 one-inch wide strip shall support a 1-3/4 pound weight for 5 minutes without the strip peeling for a distance of more than 2.0 inches when applied to a smooth aluminum panel as specified in the

## Application Instructions

The recommended application temperature to achieve best results is 65°F (18°C) or above.

The adhesive on Reflexite R99 Rail Conspicuity Material has been formulated to bond at temperatures as low as 0°F (-17.7°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 Reflexite R99 Rail Conspicuity Material Application Instructions.

## Impact Resistance

Following application to a smooth-surfaced aluminum rectangle 0.040 inch by 3.0 inch by 6.0 inch, the specimen is conditioned for 24 hours at 72° F and 50% relative humidity. The sheeting shall show no cracking or delamination outside the actual area of impact when the face of the panel is subjected to an impact of a 4.0 pound weight with 5/8 inch rounded tip dropped from a 100 inch-pound setting on a Gardner variable impact tester, IG-1120.

## Shrinkage

A 9 inch by 9 inch specimen of the sheeting with liner is conditioned a minimum of 1 hour at 72° F 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 in 10 minutes and 1/8 inch in 24 hours.

## Flexibility

The sheeting is conditioned for 24 hours at 72° F and 50% relative humidity. The release liner is removed and the sheeting is sufficiently flexible to show no cracking when bent in one seconds time around a 1/8 inch diameter mandrel with the adhesive contacting the mandrel.

## Solvent Resistance

ASTM D4956 adhesion test.

Reflexite R99 Rail Conspicuity Material meets the requirements of LS-300C solvent resistance, section 3.6.7, when tested as specified in Table VI, test method 4.4.6.

**Table 1**  
**Color Specification Limits**

Color	1		2		3		4		Reflectance Y	
	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	27.0	-----
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	15.0	45.0

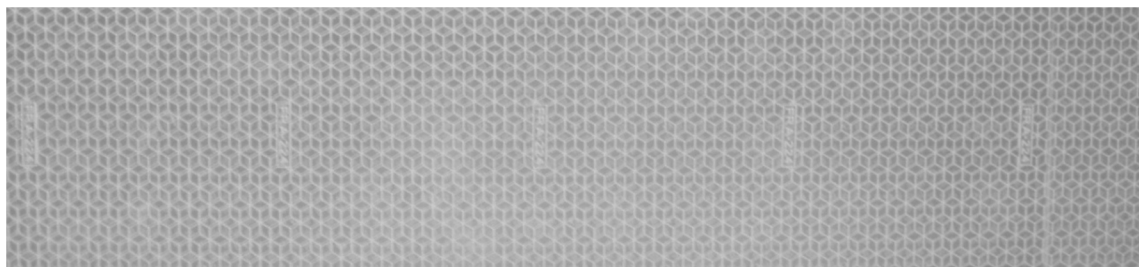
\* The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE diagram.

**Table 2**  
**Coefficient of Retroreflection (R')**

Observation Angles	Entrance Angles	White	Yellow
0.2°	-4°	600	400
0.2°	30°	350	220
0.5°	-4°	160	100
0.5°	30°	75	45

\*Candelas/Lux/Square Meter

**Film Logo Pattern**



**Warranty**

Reflexite® R99 has a 10 year warranty. Please contact Reflexite for full details.

**IMPORTANT NOTICE**

All Reflexite® and 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 Reflexite® and 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 Reflexite and 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.