

# AURA<sup>®</sup> 149-TL Railcar Conspicuity Tape

Product Code: 0149-TL

Product Data Bulletin

## Product Overview

Aura Optical Systems' AURA<sup>®</sup> 149-TL Conspicuity Tape is a microprismatic retroreflective tape designed for use on the sides of railcars and locomotives. It conforms to the requirements of the 49 C.F.R., Part 224 standard and contains the FRA-224 marking.

## Physical Characteristics & Properties

Durability	Up to 10-years when properly installed. Vertical application and exposure only. †
Retroreflective Elements	Microprisms, metalized with vacuum-deposited aluminum
Tape Thickness	12.5 mils, excluding release liner
Face Film	Acrylic
Release Liner	HDPE Release Liner
Application Surface	Aluminum. Painted metals. †† Wet application method is not recommended. Not recommended for unpainted stainless steel. Always test the compatibility of the adhesive and product with the intended application surface.
Application Temperature	5°C (40°F) minimum

† For application to tank cars, it is recommended to apply vertical strips of the AURA 149-TL Conspicuity Tape with the top edge of each strip aligned with the centerline of the tank car per Figure 8 of 49 C.F.R. Part 224. Such application will allow for greater durability by eliminating non-vertical application of the product.

†† As there are an endless variety of paint and coating formulations available, the user should always test compatibility of the adhesive and product with the intended application surface. Some paints and coatings may contain ingredients or components that may migrate to the surface and adversely affect the adhesion or performance of the reflective sheeting. Aura Optical Systems offers a variety of testing services to assist with such testing and evaluation.

## Key Features

- Approved by the Association of American Railroads under AAR Specification M-947
- Metalized, single-ply construction to prevent edge-lifting or delamination
- No edge sealing required
- Aggressive, high-tack adhesive for application at cold temperatures
- Retains retroreflectivity when wet

## Retroreflection

AURA<sup>®</sup> 149-TL Conspicuity will yield the reflectivity levels listed in the tables below when tested in accordance with ASTM E-810. 0° and 90° rotation measurements are averaged.

Typical Coefficient of Retroreflection (cd/lx/m<sup>2</sup>)

Color	Observation Angle	Entrance Angle	
		-4°	30°
White	0.2°	700	400
	0.5°	180	90
Yellow	0.2°	500	275
	0.5°	120	70

Minimum Requirement per 49 C.F.R., Part 224  
Coefficient of Retroreflection (cd/lx/m<sup>2</sup>)

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

## Color and Size Configurations

Standard roll sizes are 4" x 50 yards.

Product Code	Color
0149-TL-00	White
0149-TL-01	Yellow



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Data Bulletin: 0149-TL-042022-r1  
April, 2022

## Daytime Color

The color of the tape shall fall within the four pairs of chromaticity coordinates (CIE 1931 Standard Colorimetric System) when measured with Standard Illuminant D65 using a 0/45 (45/0) geometry instrument.

Color	1		2		3		4		Cap Y%	
	x	y	x	y	x	y	x	y	Min	Max
White	.303	.300	.368	.366	.340	.393	.274	.329	15	--
Yellow	.498	.412	.557	.442	.479	.520	.438	.472	12	30

## Application Guidelines

Aura Optical Systems' AURA® 149-TL Conspicuity Tape should be applied only to clean and dry surfaces when temperatures are above 40°F. Optimal adhesion levels will occur at temperatures above 60°F.

The user should always test compatibility of the tape with the intended application surface. Wipe surfaces with rubbing alcohol (or similar solvent cleaner) and allow the surface to completely dry prior to application. Wet application methods should not be utilized. Apply only to surfaces free of rust, dirt, loose paint, or other contaminants. AURA® 149-TL is not recommended for direct application to unpainted stainless steel.

For freshly painted surfaces, the paint should be allowed to cure for at least 48-hours prior to application of the conspicuity tape. Certain paint and coating formulations may contain ingredients or components that may migrate to the surface and adversely affect the adhesion or performance of the reflective sheeting.

Application of the tape should occur using a squeegee or hand roller to apply pressure to create a permanent bond. Always apply pressure while working from the center of the tape towards the edges to push air out from under the tape and to minimize the chance for air entrapment or bubbles. Care should be taken to avoid excessive handling of the adhesive to avoid potential contamination.

Application over large rivets or sharp corrugations is not recommended. For application over smaller rivets (< 1/2 inch), use a punching tool, such as an arch punch or belt punch, to cut the conspicuity tape around the rivet surface. Then, apply pressure around the edges of the rivet using a squeegee or roller to ensure a strong adhesive bond.

## Storage


Use within 2-years of receipt of the product. Store in a cool, dry area out of direct sunlight. Maintain storage temperatures between 60° - 75°F with humidity levels between 25% - 50%.

## Warranty Information

The information, technical data, and statements made herein are believed to be reliable, but the accuracy or completeness thereof is not guaranteed and should not be construed as a warranty or representation for which Aura Optical Systems assumes legal responsibility. All Aura Optical Systems products are sold with the understanding that the Purchaser has independently determined the suitability of such products for its purposes.

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