

Transportation Safety Division

3M™ Flexible Prismatic Conspicuity Tape Series 913

Product Bulletin Series 913
May 2019

Initial Issue

1 Description

3M Flexible Prismatic Conspicuity Tape Series 913 (“Tape”) is a versatile DOT-C2 compliant retroreflective material for striping trucks, trailers, and other equipment. The Tape is a flexible material comprised of engineered microprisms, formed in a transparent synthetic resin, reflectorized, and backed with a pressure sensitive adhesive and paper release liner. The Tape has been designed to be easily applied and to adhere to the cleaned metal surfaces of the backs and sides of roadway vehicles and other equipment and provides excellent visibility, especially at night when illuminated by headlights or other light sources. The Tape is also useful for enhancing the visibility of equipment not subject to DOT regulation.

For details of the features and benefits of the Tape, please refer to the 3M Transportation Safety Division website (<http://www.3M.com/roadsafety/>).

Tape is available in the following colors.

Table 1. Tape product codes by color and pattern.

Color	Product Code
White	913-10
Red	913-72
Red 11-inch/White 7-inch (alternating pattern)	913-32
Red 6-inch/White 6-inch (alternating pattern)	913-326

2 Properties

2.1 Product Features

- Flexible
- Accommodates low temperature application: minimum 35 °F (2 °C)
- Warranted performance for 5 years
- Available in rolls, packaged pieces, or kiss-cut pieces on a roll. Please refer to the 3M Transportation Safety Division Pricing Catalog for the standard product offering.

2.2 Easy to apply

- Aggressive pressure sensitive adhesive
- Easy to remove liner

2.3 Product Performance

This product meets all of the physical property requirements specified in FMVSS 108, including the following:

- Flexibility
- Shrinkage
- Liner removal
- Impact resistance
- Colorfastness

3 Specifications

3.1 Coefficient of Retroreflection

Retroreflectivity is expressed in terms of coefficients of retroreflection, R_A . Minimum R_A values for Tape, when new, are given in Table 2. R_A measurements shall be made on new, clean samples that have been applied to aluminum panels according to the methods described in FMVSS 108.

Table 2. Minimum coefficient of retroreflection^a in candelas/foot candle/square Foot or (cd/lux/m²)

Observation Angle ^b	Entrance Angle ^c	White	Red
0.2°	-4°	250	60
0.2°	+30°	250	60
0.2°	+45°	60	15
0.5°	-4°	65	15
0.5°	+30°	65	15
0.5°	+45°	15	4

- a. Reflectivity conforms to FMVSS 108 Table XVIc Grade C2.
 b. Observation Angle – The angle between the illumination axis and the observation axis.
 c. Entrance Angle – The angle from the illumination axis to the retroreflector axis. The retroreflector axis is an axis perpendicular to the retroreflective surface.

3.2 Chromaticity

The daytime color of Tape shall fall within the chromaticity coordinate limits given in Table 3 and meet the requirements of FMVSS 108 S8.2. Chromaticity measurements shall be taken from samples that have been applied to aluminum test panels according to the methods described in ASTM E1349.

Table 3. CIE chromaticity coordinate limits.

Color									Reflectance Limit (Y) Color	
	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	15.0	--
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	11.0

4 Installation

Tape can be applied to clean, dry surfaces when both the ambient and substrate temperature are 35 °F (2 °C) or higher, using the following procedure:

- Cut Tape with scissors, utility knife, or razor blade cutting tool.
- Initiate liner peel by picking the film from the liner, rather than picking the liner from the film.
- Wipe the application surface with isopropyl alcohol to remove traces of oil or road grime. If the isopropyl alcohol does not evaporate quickly, wipe the surface with a clean, dry cloth to ensure it is dry.

When applying Tape to low energy surfaces (for example, many paints) Tape should be squeegeed to increase adhesion. When applying Tape to low energy surfaces at temperatures below 50 °F (10 °C), a squeegee with a low friction sleeve must be used. Failure to use a squeegee with a low friction sleeve on low energy surfaces at temperatures below 50 °F (10 °C) will void the warranty.

[Information Folder 4.9](#) provides detailed instructions on surface preparation, cleaning, and the tape application processes required to achieve optimum Tape adhesion.

4.1 Exposure Considerations

Tape has been designed to be applied to vehicle and trailer bodies at nearly vertical orientations (within ±10°). The retroreflective function and service life of Tape may be diminished if applied at orientations outside of this design limit.

5 Maintenance

5.1 Cleaning

Routine cleaning is recommended for maximum performance. The following cleaning methods are recommended:

- Clean with sponge, cloth, or soft brush using water and detergent.
- Clean with automatic truck/car wash or standard high-pressure hand spray under following conditions:
 - Maximum pressure: 1200 PSI/80 bar
 - Maximum water/wash solution temperature: 140 °F (60 °C)
 - Minimum of 12 inches (30 cm) between cleaning jet(s) and marking
 - Cleaning wand or jets at angle of no more than 45° from perpendicular to the marking surface
 - Use spray tip #1505 (15° spray angle, 05 capacity size).

When using a metal brightener, follow manufacturer's recommendations for dilution. Thoroughly rinse brightener from markings after soaking vehicle.

5.2 Storage

Tape should be stored in a cool, dry area, out of direct sunlight, at a temperature of 65-75 °F (18-24 °C) and a relative humidity of 30-50%. Rolls should be stored horizontally in their shipping cartons or original packaging.

Apply Tape within one year of receipt of material.

6 Health and Safety Information

Read all health hazard, precautionary, and first aid statements found in the Safety Data Sheet (SDS), Article Information Sheet, and/or product labels of chemicals prior to handling or use. Consult local regulations and authorities for possible restrictions. Visit us at www.3M.com/us and select SDS search to obtain current Safety Data Sheets.

7 Warranty Information

7.1 3M Basic Product Warranty

Tape is warranted (“Basic Warranty”) to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this product bulletin. If the Tape is proven not to have met the Basic Warranty on its shipment date, then a buyer’s exclusive remedy, and 3M’s sole obligation, at 3M’s option, will be replacement of the Tape only.

7.2 Additional Warranty

3M warrants (“3M Warranty”) that Tape sold by 3M to be used for conspicuity markings on trucks, trailers, and other equipment (“Equipment”) in the United States and Canada will remain visible by resisting excessive fading, cracking, peeling, and lifting for five (5) years (“Warranty Period”), as measured from the date of initial application onto the Equipment (“Installation Date”).

7.3 Terms and Conditions

- o Tape must be processed and applied to a vertically-mounted ($\pm 10^\circ$) 3M recommended substrate as described in this product bulletin and in accordance with all 3M application, fabrication, and cleaning procedures provided in 3M’s product bulletins, information folders (including but not limited to [3M Information Folder 4.9](#)), and applicable technical memos (which will be furnished to the manufacturer upon request).
- o Any third-party imaging or altering of the Tape not endorsed by 3M will void the 3M Warranty.
- o Tape’s failure to meet the 3M Warranty must be solely the result of design or manufacturing defects in the Tape and not of (a) outside causes including improper storage, fabrication, handling, maintenance, or installation; (b) use of process colors, thinners, coatings, or other chemicals not recommended by 3M; (c) use of application procedures not recommended by 3M; (d) exposure to chemicals or solvents not recommended by 3M; (e) abrasion and other physical damage; (f) snow or any other burial of the marking; (g) collisions, vandalism, or malicious mischief; or (h) an act of God.
- o 3M reserves the right to determine the method of replacement. Replacement product will carry the unexpired warranty of the Tape it replaces.
- o Claims made under this warranty will be honored only if (a) 3M is presented with a traceable record of the Tape’s Installation Date, (b) 3M is notified in writing of the claim within thirty days of discovery, (c) 3M is provided with the information reasonably required to validate the claim, and (d) 3M is permitted to verify the cause of the failure.

7.4 Exclusive Limited Remedy

If Tape is proven not to have met the 3M Warranty during the Warranty Period, then the purchaser’s and user’s exclusive remedy, and 3M’s sole obligation, at 3M’s option, shall be that 3M will provide replacement of the Tape.

7.5 Disclaimer

THE 3M WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING OR OF PERFORMANCE, CUSTOM, OR USAGE OF TRADE.

7.6 Limitation of Liability

Except for the limited remedy stated above, and except where prohibited by law, 3M will not be liable for any loss or damage arising from any 3M product, whether direct, indirect, special, incidental, or consequential damages (including but not limited to lost profits, business, or revenue in any way), regardless of the legal theory asserted including warranty, contract, negligence, or strict liability.

8 Other Product Information

Always confirm that you have the most current version of the applicable product bulletin, information folder, or other product information from 3M's Website at <http://www.3M.com/roadsafety>.

9 Literature References

[3M IF 4.9](#) 3M™ Diamond Grade™ and Flexible Prismatic Conspicuity Markings Application Instructions For Trucks, Trailers, and Specialty Vehicles

ASTM Test Methods are available from ASTM International, West Conshohocken, PA.

For Information or Assistance

Call: 1-800-553-1380

In Canada Call:

1-800-3M HELPS (1-800-364-3577)

Internet:

<http://www.3M.com/roadsafety>

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Transportation Safety Division
3M Center, Building 0225-04-N-14
St. Paul, MN 55144-1000 USA

Phone 1-800-553-1380
Web [3M.com/roadsafety](http://www.3M.com/roadsafety)

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