



Designation: **D4505 – 05 D4505 – 12**

Standard Specification for Preformed Retroreflective Pavement Marking Tape for Extended Service Life¹

This standard is issued under the fixed designation D4505; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers white or yellow preformed retroreflective pavement marking tape, that when applied to a road surface, will provide a service life normally greater than one year depending on ~~the average daily traffic count (ADT), wear and durability factors.~~

1.2 The preformed retroreflective pavement tape is suitable for longitudinal markings and transverse markings including word/symbol markings. It is designed to be a pavement marking with extended service life.

1.3 The values stated in inch—pound units are to be regarded as the standard except where noted in the document. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 ASTM Standards:²

[D1000 Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications](#)

[D1898 Practice for Sampling of Plastics \(Withdrawn 1998\)³](#)

[D4061 Test Method for Retroreflectance of Horizontal Coatings](#)

[D6628 Specification for Color of Pavement Marking Materials](#)

[E303 Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester](#)

[E1710 Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer](#)

2.2 CIE Publications:⁴

[No. 15.2 Colorimetry](#)

[No. 39.2 Recommendations for Surface Colours for Visual Signaling](#)

3. Terminology

3.1 Definitions:

3.1.1 *extended service life or period, n*—a minimum service period of 12 months when placed in accordance with the manufacturers' recommended procedures on pavement surfaces ~~having a daily traffic count not to exceed 15 000 ADT per lane.~~

¹ This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.38 on Highway Traffic Control Materials.

Current edition approved June 1, 2005 Dec. 15, 2012. Published July 2005. Originally approved in 1985. Last previous edition approved in 2004 as ~~D4505 – 04~~ D4505 – 05. DOI: 10.1520/D4505-05.10.1520/D4505-12.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ CIE publications are available from USNC-CIE Publications Office, TLA Lighting Consultants, Inc. 7 Pond Street, Salem, MA 01970.

3.1.1.1 Discussion—

~~15 000 ADT per lane is typical of heavily traveled roads such as interstate highways through major urban areas. See also See Section 7 for factors affecting durability.~~

3.1.2 *preformed tape, n*—continuous, flexible pavement marking material that is essentially complete and that may be affixed to or imbedded in the road surface without fundamentally altering its configuration.

3.1.3 *retroreflection, n*—reflection in which radiation is returned in directions close to the direction from which it came and maintained over wide variations of the direction of the incident radiation.

3.1.4 *surface pattern, n*—a pattern on the surface, in which the raised areas are a minimum of 0.8 mm (31 mils) high and occupy approximately 50 % of the surface area, presenting a substantial area of nearly vertical face to traffic from any approach surface with areas of raised surface area.

4. Classification

4.1 *Preformed Retroreflective Pavement Marking Tape* shall be identified as:

4.1.1 Reflectivity Level I; Class 1, 2 or 3; Skid Resistance Level A, or B.

4.1.2 Reflectivity Level II; Class 1, 2 or 3; Skid Resistance Level A, or B.

4.2 *Reflectivity Levels:*

4.2.1 *Reflectivity Level I*—A tape that, when new, conforms to the retroreflectance requirements for Reflectivity Level I in **Table 1** when measured in accordance with 6.4.

4.2.2 *Reflectivity Level II*—A tape that, when new, conforms to the retroreflectance requirements for Reflectivity Level II in **Table 1** when measured in accordance with 6.4.

4.3 *Classes:*

4.3.1 *Class 1*—A tape without precoated adhesive, for application with liquid contact cement.

4.3.2 *Class 2*—A tape with precoated pressure-sensitive adhesive, for application with or without surface preparation adhesive or primer.

4.3.3 *Class 3*—A tape with precoated pressure-sensitive adhesive protectively covered by an easily removable liner.

4.4 *Skid Resistance:*

4.4.1 *Skid Resistance Level A*—A tape that, when new, has a skid resistance value of at least 45 BPN when tested in accordance with 6.6.

4.4.2 *Skid Resistance Level B*—A tape that, when new, has a skid resistance value of at least 55 BPN when tested in accordance with 6.6.

5. Ordering Information

5.1 The purchaser using this specification shall include the following information:

5.1.1 ASTM designation (D4505),

5.1.2 Classification type for Retroreflectance (I or II; see 4.2),

5.1.3 Classification class for adhesive (1, 2, or 3; see 4.3),

5.1.4 Classification skid resistance level (A or B; see 4.4),

5.1.5 Daytime color (see 6.2),

5.1.6 Width and Length of rolls, and

5.1.7 Any additional information.

6. Requirements

6.1 *Physical Requirements:*

6.1.1 The marking tape shall be flexible and shall conform to the typical road pavement surface.

6.1.2 The marking tape shall adhere to asphalt or portland cement concrete roadway surfaces when applied according to the manufacturer’s recommended procedures on pavement surfaces having temperatures down to 10°C (50°F).

6.2 *Color:*

6.2.1 The white and yellow marking tape shall conform to the requirements of Specification **D6628**.

6.3 *Dimensions*—The marking tape as supplied shall be free of cracks, and have edges true, straight and unbroken. The actual width of rolls of preformed marking tape used for striping shall be no less than the nominal (stated) width and no more than 3 mm (1/8 in.) greater than the nominal width. The length shall be no less than the length stated.

6.4 *Retroreflection:*

TABLE 1 Retroreflectance Retroreflectivity Values for New, Dry Samples^A

Entrance Angle	Observed Retroreflectivity	Retroreflectivity Level	R _r , mcd/m ² /lx	
			White	Yellow
88.76	1.05	Reflectivity I	500	300
		Reflectivity II	250	175

^AMinimum Retroreflectivity (RL) mcd m⁻² lx⁻¹ (mcd ft⁻² fc⁻¹)