



Designation: D4960 – 08 (Reapproved 2013)

Standard Test Method for Evaluation of Color for Thermoplastic Traffic Marking Materials¹

This standard is issued under the fixed designation D4960; 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 test method describes the instrumental determination of color of thermoplastic traffic marking materials using the CIE tristimulus color measurement system.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D883 Terminology Relating to Plastics

D7307 Practice for Sampling of Thermoplastic Traffic Marking Materials

D7308 Practice for Sample Preparation of Thermoplastic Traffic Marking Materials

E179 Guide for Selection of Geometric Conditions for Measurement of Reflection and Transmission Properties of Materials

E284 Terminology of Appearance

E308 Practice for Computing the Colors of Objects by Using the CIE System

E313 Practice for Calculating Yellowness and Whiteness Indices from Instrumentally Measured Color Coordinates

E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation

E1347 Test Method for Color and Color-Difference Measurement by Tristimulus Colorimetry

E1349 Test Method for Reflectance Factor and Color by Spectrophotometry Using Bidirectional (45°:0° or 0°:45°) Geometry

F412 Terminology Relating to Plastic Piping Systems

3. Terminology

3.1 *Definitions*—Definitions are in accordance with Terminology D883, E284 and F412, unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *thermochromism, n*—a change in color that takes place in the thermoplastic material with temperature changes.

3.2.2 *thermoplastic traffic marking material, n*—a highly filled 100 % total solids highway marking material that when heated to a molten state can be extruded or sprayed onto a road surface and when cooled forms a solid, durable delineator.

4. Summary of Test Method

4.1 The test specimen, representative of the material to be tested, is taken from a molten sample obtained in accordance with Practice D7307. The thermoplastic specimen is prepared by pouring into a TFE-fluorocarbon coated pan, to form a patty of approximately 7.6 cm (3 in.) in diameter. The patty is allowed to cool to room temperature before measuring the color. Color measurements are made on the flat side or the top side of the thermoplastic patty.

NOTE 1—No significant color differences are encountered in reading the top or bottom of the patty.

5. Significance and Use

5.1 This test method provides a standard procedure for the determination of color of thermoplastic traffic marking materials. This test method can be used in conjunction with various thermoplastic pavement marking specifications to determine compliance of the material to said specification. This method can also be used by manufacturers of these materials to determine the uniformity of thermoplastic traffic marking materials from batch to batch.

5.2 There is a slight variation in color standards and colorimeters. This test method is only applicable when results are reported with information listing the instrument model designation and calibration standard.

¹ This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.44 on Traffic Coatings.

Current edition approved Nov. 1, 2013. Published November 2013. Originally approved in 1989. Last previous edition approved in 2008 as D4960 – 08. DOI: 10.1520/D4960-08R13.

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.