



Standard Guide for Setting Object Color Specifications¹

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1. Scope

1.1 This guide leads the user through a process for establishing color specifications, including the target color and allowable tolerances. It refers to the appropriate ASTM standards that more thoroughly describe each step of the process beginning with expectations, encompassing caveats within the process and finally concluding with reporting.

1.2 This guide does not suggest numerical values for tolerances. These values must be agreed upon by the parties involved.

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

D523 Test Method for Specular Gloss

D1729 Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials

D2244 Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates

D3134 Practice for Establishing Color and Gloss Tolerances

D3964 Practice for Selection of Coating Specimens for Appearance Measurements

D4086 Practice for Visual Evaluation of Metamerism

D4449 Test Method for Visual Evaluation of Gloss Differences Between Surfaces of Similar Appearance

D5531 Guide for Preparation, Maintenance, and Distribution of Physical Product Standards for Color and Geometric Appearance of Coatings

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

E805 Practice for Identification of Instrumental Methods of Color or Color-Difference Measurement of Materials

E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation

E1345 Practice for Reducing the Effect of Variability of Color Measurement by Use of Multiple Measurements

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

E1499 Guide for Selection, Evaluation, and Training of Observers

E1708 Practice for Electronic Interchange of Color and Appearance Data

E1808 Guide for Designing and Conducting Visual Experiments

E2214 Practice for Specifying and Verifying the Performance of Color-Measuring Instruments

E2867 Practice for Estimating Uncertainty of Test Results Derived from Spectrophotometry

2.2 CIE Publications:

CIE Publication 015 Colorimetry³

3. Terminology

3.1 *Definitions*—For definitions of terms related to this guide see Terminology E284.

4. Summary of Guide

4.1 This guide describes the process for establishing color specifications for a material, including the decision as to whether this specification will be based on visual or instrumental methods.

4.2 General considerations of appearance, evaluation of observers, and measurement techniques are included.

4.3 It begins the process of setting a tolerance by first selecting a standard or target color for the material, including the production, measurement, and storage of that target.

¹ This guide is under the jurisdiction of ASTM Committee E12 on Color and Appearance and is the direct responsibility of Subcommittee E12.04 on Color and Appearance Analysis.

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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 Available from CIE (International Commission on Illumination), <http://www.cie.co.at> or <http://www.techstreet.com>.