



Designation: D8163 – 18 (Reapproved 2023)

Standard Test Method for Determination of Strength of Colorants and Bases for Architectural, Marine, Maintenance, Commercial, and Industrial Coatings¹

This standard is issued under the fixed designation D8163; 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 covers the determination of strength of colorant dispersions, colored and white bases, for architectural, marine, maintenance, commercial, and industrial coatings.

1.2 This test method applies to colorant dispersions and colored and white bases regardless of the methods used to disperse these materials.

1.3 The resultant test value is in terms of percent strength in which a material stronger than standard is implied by values larger than 100 % and weaker than standard is implied by values less than 100 %. The value of 100 % implies exact strength conformance to the test method.

1.4 This test method is suitable for the determination of strength when tolerances are set about standards that are prepared either by weight concentration or volume concentration.

1.5 The test result is empirically determined. The user determines and supplies the standard for strength of the product under test and the test result is relative to that supplied standard.

1.6 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.7 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standard-*

ization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

- [D823 Practices for Producing Films of Uniform Thickness of Paint, Coatings and Related Products on Test Panels](#)
- [D1475 Test Method for Density of Liquid Coatings, Inks, and Related Products](#)
- [D3964 Practice for Selection of Coating Specimens for Appearance Measurements](#)
- [E284 Terminology of Appearance](#)
- [E308 Practice for Computing the Colors of Objects by Using the CIE System](#)
- [E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation](#)
- [E1331 Test Method for Reflectance Factor and Color by Spectrophotometry Using Hemispherical Geometry](#)
- [E1349 Test Method for Reflectance Factor and Color by Spectrophotometry Using Bidirectional \(45°:0° or 0°:45°\) Geometry](#)

3. Terminology

3.1 *Definitions:* Terms and definitions in Terminology [E284](#) are applicable to this test method.

3.1.1 *reflection factor, n*—in strength of colorant or base, a value representative of the fraction of incident radiant energy that is reflected from a surface under conditions specified.

3.1.2 *strength, n*—of a colorant or base, a value that is quantitatively related to the effective concentration of a test colorant or test base relative to the effective concentration of the standard or reference for that colorant or base.

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 [D01.26](#) on Optical Properties.

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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.