



Designation: E284 – 22

Standard Terminology of Appearance¹

This standard is issued under the fixed designation E284; 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.

INTRODUCTION

Appearance, including the appearance of objects, materials, and light sources, is of importance in many arts, industries, and scientific disciplines. Appearance terms are used in a wide range of ASTM standards as well as other documents of concern in standardization, testing, and specification. The purpose of this terminology standard is to define terms relating to the description of appearance.

Definitions are of two distinctly different kinds. A *descriptive* definition reports existing usage, whereas a *prescriptive* definition is an invitation to use a term in a specific way. By agreement of ASTM Committee E12 on Color and Appearance, the definitions in this terminology standard are taken to be *prescriptive* in nature. Committee E12 thereby assumes a position of leadership in usage.

Terms and definitions in several terminology standards and vocabularies other than ASTM (see References), as well as other ASTM terminology standards, have been considered for inclusion in this terminology standard. An effort has been made to achieve greater accuracy, brevity, clarity, precision, and internal consistency, and to draw distinctions that are useful in the practical measurement and specification of appearance.

Suggestions for additions or revisions to this terminology standard are welcome.

1. Scope

1.1 This terminology standard defines terms used in the description of appearance, including but not limited to color, gloss, opacity, scattering, texture, and visibility of both materials (ordinary, fluorescent, retroreflective) and light sources (including visual display units).

1.2 It is the policy of ASTM Committee E12 on Color and Appearance that this terminology standard include important terms and definitions explicit to the scope, whether or not the terms are currently used in an ASTM standard. Terms that are in common use and appear in common-language dictionaries (see Refs (1–2)²) are generally not included, except when the dictionaries show multiple definitions and it seems desirable to indicate the definitions recommended for E12 standards.

1.3 The usage of terms describing appearance varies considerably. In some cases, different usage of a term in different fields has been noted.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization 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:*³

C242 Terminology of Ceramic Whitewares and Related Products

C286 Terminology Relating to Porcelain Enamel and Ceramic-Metal Systems

C460 Terminology for Asbestos-Cement (Withdrawn 2001)⁴

D16 Terminology for Paint, Related Coatings, Materials, and Applications

D123 Terminology Relating to Textiles

D156 Test Method for Saybolt Color of Petroleum Products (Saybolt Chromometer Method)

D883 Terminology Relating to Plastics

¹ This terminology is under the jurisdiction of ASTM Committee E12 on Color and Appearance and is the direct responsibility of Subcommittee E12.01 on Terminology.

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² The boldface numbers in parentheses refer to a list of references at the end of text.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

- D1003 Test Method for Haze and Luminous Transmittance of Transparent Plastics
- D1129 Terminology Relating to Water
- D1245 Practice for Examination of Water-Formed Deposits by Chemical Microscopy
- D1535 Practice for Specifying Color by the Munsell System
- D1695 Terminology of Cellulose and Cellulose Derivatives
- D1889 Test Method for Turbidity of Water (Withdrawn 2007)⁴
- D2805 Test Method for Hiding Power of Paints by Reflectometry
- E131 Terminology Relating to Molecular Spectroscopy
- E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials
- E179 Guide for Selection of Geometric Conditions for Measurement of Reflection and Transmission Properties of Materials
- E313 Practice for Calculating Yellowness and Whiteness Indices from Instrumentally Measured Color Coordinates
- E349 Terminology Relating to Space Simulation
- E456 Terminology Relating to Quality and Statistics
- E491 Practice for Solar Simulation for Thermal Balance Testing of Spacecraft
- E808 Practice for Describing Retroreflection
- E809 Practice for Measuring Photometric Characteristics of Retroreflectors
- E903 Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
- E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation
- E1767 Practice for Specifying the Geometries of Observation and Measurement to Characterize the Appearance of Materials
- E2175 Practice for Specifying the Geometry of Multiangle Spectrophotometers
- E2214 Practice for Specifying and Verifying the Performance of Color-Measuring Instruments
- F923 Guide to Properties of High Visibility Materials Used to Improve Individual Safety (Withdrawn 2006)⁴

2.2 Other Documents:

- ANSI PH2.36 Terms, Symbols, and Notation for Optical Transmission and Reflection Measurement (Optical Density)⁵
- CIE Publication No. 51 A Method for Assessing the Quality of Daylight Simulators for Colorimetry⁶
- ISO 13655 Spectral Measurement and Colorimetric Computation for Graphic Arts Images⁷
- ISO 3664:2000 Viewing Conditions – Graphic Technology and Photography⁷

TAPPI T 452 Brightness of Pulp, Paper, and Paperboard (Directional Reflectance at 457 nm)⁸

3. Significance and Use

3.1 This terminology standard contains definitions of appearance terms applicable to the work of many ASTM technical committees. Its use by committees other than Committee E12 on Color and Appearance, and its citation in the standards of such committees, is encouraged.

3.2 In this terminology standard, definitions of terms used in other ASTM standards are indicated by placing the designation of that standard in parentheses at the end of the definition. Definitions used by other organizations (see Refs (3–4)) are indicated similarly by placing in parentheses at the end of the definition the acronym of the organization, occasionally with the date of its terminology standard quoted. In either case, a superscript letter may be used to indicate the degree of correspondence between the definition given herein and that in the citation. Superscript *A* indicates that the two are identical; *B* that the given definition is a modification of that cited, with little difference in essential meaning; and *C* that the two differ substantially.

3.3 A further parenthetical inclusion at the end of the definition gives the revision, if after 1981, in which the definition was added to this terminology standard or last revised.

3.4 Where appropriate, symbols or acronyms are listed for terms in this terminology standard. Since usage varies, these listings should be considered as recommendations, not as mandatory. If a different symbol or acronym is used in another ASTM standard, this should be indicated in that standard.

3.5 In the 1990 edition of this terminology standard, a great many terms were relocated to conform to the recommendation of the *Form and Style for ASTM Standards*, (Blue Book) that listings be in spoken word order. In general, there are no cross-references between the old and new listings, except where a special function is served. An example of such a special function is to list all terms relating to a given basic quantity, for example, all terms defining various sorts of angles.

3.6 This terminology standard adopts the following usage of certain word endings. The ending “ion” denotes a process, as in *reflection*; “ance” denotes a property of a specimen, as in *reflectance*; and “ity” denotes a property of the kind of material of which the specimen is composed, as in *reflectivity*. Exceptions exist, as in the common use of *illumination* and *radiation* to refer to quantities as well as processes.

4. Terminology

4.1 Definitions:

AATCC blue wool lightfastness standards, *n*—standard dyed-wool samples of seven grades, each step in the series representing a doubling of lightfastness.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁶ Available from CIE (International Commission on Illumination), <http://www.cie.co.at> or <http://techstreet.com>.

⁷ Available from International Organization for Standardization (ISO), 1 rue de Varembe, Case postale 56, CH-1211, Geneva 20, Switzerland, <http://www.iso.ch>.

⁸ Available from Technological Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Suite 115, Peachtree Corners, GA 30092, <http://www.tappi.org>.