



Standard Practice for Specifying Color by the Natural Colour System (NCS)¹

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1. Scope

1.1 The Natural Colour System (NCS) (see 1.7) provides a color notation system that can be used to communicate color. This practice introduces the Natural Colour System, its terminology, and conversion to and from CIE tristimulus values.

1.2 The system described in this standard includes color percepts that appear to belong to the surface of a material, provided the surface is not perceived to be fluorescent or to exhibit directional color effects.

1.3 The system does not include colors that appear to belong to translucent or luminescent objects (so-called volume colors and luminous colors), nor does it include other visual properties of the surface layer, such as gloss and texture. An NCS notation does not describe the physical or chemical properties of an object.

1.4 This practice also specifies the conditions for visual or instrumental determination of the NCS notation of a color sample, defines the relationships between psychometrically determined NCS notations and the corresponding CIE color coordinates which are to be used in this context.

1.5 For the accuracy requirements associated with NCS standards and NCS color samples, the user is referred to Swedish Standard SS 19104. The colored illustrations in this standard shall not be used as standard color samples in any way. Color illustrations that are shown on screen or in printouts may be significantly different than the original NCS color samples with the same NCS Notation due to limited color reproduction capabilities in screens and printers.

1.6 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.7 *Acknowledgement—NCS, Natural Colour System is a trademark of the NCS Colour AB Stockholm, Sweden and is protected by copyright (www.ncscolour.com). All rights re-*

served. Original NCS color samples are only available from NCS Colour AB or any authorized NCS distributor. Commercial use of the NCS System requires a license from NCS Colour AB.

1.8 *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

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

2.2 Swedish Standards:³

SS 19100 Colour Notation system

SS 19102:2004 NCS Colour Atlas

SS 19104 NCS colour samples — Observation and measurement conditions and tolerances

2.3 Other Documents:⁴

CIE 15:2004 Colorimetry

2.4 ASTM Adjuncts:

Spreadsheet for NCS Notations and CIE Coordinates⁵

3. Terminology

3.1 Terms and definitions in Terminology E284 are applicable to this practice.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *elementary color, n*—one of the six color percepts each of which can be described only by reference to itself.

¹ This practice is under the jurisdiction of ASTM Committee E12 on Color and Appearance and is the direct responsibility of Subcommittee E12.07 on Color Order Systems.

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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 Swedish Standards Institute, SIS Förlag AB, SE-118 80 Stockholm, Sweden, www.sis.se.

⁴ Available from U.S. National Committee of the CIE (International Commission on Illumination) or CIE Webshop <http://www.techstreet.com/cie>.

⁵ Available from ASTM International Headquarters. Order Adjunct No. ADJE2970S-EA. Original adjunct produced in 2014.