



Standard Test Method for Luminance Ratio of a Fluorescent Specimen using a Narrow Band Source¹

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1. Scope

1.1 This test method covers the instrumental measurement of the luminance ratio of a fluorescent coating or sheet sample when illuminated by a narrow band source.

1.2 This test method is generally applicable to any coating or sheeting material having combined fluorescent and reflective properties, where the fluorescence is activated by 405 nm light.

1.3 This test method is intended as a companion to Specification E2501 to support the development and specification of industrial coatings that are used in a system for detection of coating defects when inspected with the Specification E2501 light source. This test method establishes a quantitative measure of the optical property of a coating that correlates to its ability to enhance defect contrast under the specified inspection light source.

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

1.5 *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

D2805 Test Method for Hiding Power of Paints by Reflectometry

D4356 Practice for Establishing Consistent Test Method Tolerances (Withdrawn 2007)³

¹ This test method is under the jurisdiction of ASTM Committee E12 on Color and Appearance and is the direct responsibility of Subcommittee E12.05 on Fluorescence.

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

D5162 Practice for Discontinuity (Holiday) Testing of Non-conductive Protective Coating on Metallic Substrates

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

E284 Terminology of Appearance

E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation

E1488 Guide for Statistical Procedures to Use in Developing and Applying Test Methods

E2501 Specification for Light Source Products for Inspection of Fluorescent Coatings

2.2 Other Documents:

ISO 10527:2007(E)/CIE S 014-1/E:2006 CIE Standard Colorimetric Observers⁴

CIE Publication 69:1987 Methods of characterizing illuminance meters and luminance meters: Performance, characteristics and specifications⁴

2.3 SSPC:

SSPC-SP 10/NACE No. 2 Near-White Blast Cleaning⁵

3. Terminology

3.1 The definitions contained in Guide E179, Terminology E284, and Practice E1164 are applicable to this test method.

3.2 The definitions for coating defects, discontinuity, holiday, and pinhole are contained in Practice D5162.

3.3 Definitions of Terms Specific to This Standard:

3.3.1 *luminance ratio, n*—luminance of the sample under a given narrow band 405 nm source divided by the luminance of a 25 % reflecting Lambertian diffuser under the same narrow band 405 nm source.

4. Summary of Test Method

4.1 This test method provides a procedure for measuring the luminance ratio of a fluorescent, reflective coating compared to

⁴ Available from U.S. National Committee of the CIE (International Commission on Illumination), C/o Thomas M. Lemons, TLA-Lighting Consultants, Inc., 7 Pond St., Salem, MA 01970, <http://www.cie-usnc.org>.

⁵ Available from Society for Protective Coatings (SSPC), 40 24th St., 6th Floor, Pittsburgh, PA 15222-4656, <http://www.sspc.org>.