



Standard Practice for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Office Environments¹

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1. Scope

1.1 This practice covers the basic principles and operating procedures for using fluorescent light to determine color stability of plastics when materials are exposed in typical office environments where fluorescent overhead lighting and window-filtered daylight are used for illumination and where temperature and humidity conditions are in accordance with American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) recommendations for workers' comfort.

1.2 This practice describes four methods where specimens are exposed to fluorescent light under controlled environmental conditions. Two of the methods use an exposure device that provides for mixing of fluorescent lamps and two of the methods use devices that comply with Practice **G154**.

NOTE 1—Method I uses cool white fluorescent lamps and window glass filtered fluorescent UVB lamps and is the same method described in previous versions of this standard.

1.3 Specimen preparation and evaluation of the results are covered in ASTM methods or specifications for specific materials. General guidance is given in Practice **G151**. More specific information about methods for determining the change in properties after exposure and reporting these results is described in Practice **D5870**.

1.4 The values stated in SI units are to be regarded as the standard.

1.5 Unless otherwise specified, all dimensions are nominal.

1.6 *This practice may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety concerns, is 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.* Specific precautionary statements are given in Section 7.

NOTE 2—There is no known ISO equivalent to this standard.

¹ This practice is under the jurisdiction of ASTM Committee **D20** on Plastics and is the direct responsibility of Subcommittee **D20.50** on Durability of Plastics.

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2. Referenced Documents

2.1 *ASTM Standards*:²

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

D3980 Practice for Interlaboratory Testing of Paint and Related Materials (Withdrawn 1998)³

D5870 Practice for Calculating Property Retention Index of Plastics

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

G113 Terminology Relating to Natural and Artificial Weathering Tests of Nonmetallic Materials

G141 Guide for Addressing Variability in Exposure Testing of Nonmetallic Materials

G147 Practice for Conditioning and Handling of Nonmetallic Materials for Natural and Artificial Weathering Tests

G151 Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources

G154 Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

G169 Guide for Application of Basic Statistical Methods to Weathering Tests

3. Terminology

3.1 *Definitions*—The definitions given in Terminology **G113** are applicable to this practice.

4. Summary of Practice

4.1 This practice provides for the exposure of specimens to fluorescent light under controlled environmental conditions. Radiant energy is provided by one of the following fluorescent light sources: (1) VHO cool-white fluorescent lamps and glass filtered fluorescent UV lamps, (2) VHO cool-white fluorescent

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.