



Standard Practice for Fluorescent Ultraviolet (UV) Lamp Apparatus Exposure of Plastics¹

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1. Scope*

1.1 This practice covers specific procedures and test conditions that are applicable for fluorescent UV exposure of plastics conducted in accordance with Practices [G151](#) and [G154](#). This practice also covers the preparation of test specimens, the test conditions best suited for plastics, and the evaluation of test results.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.3 *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.*

NOTE 1—This practice is technically similar to ISO 4892-3.

2. Referenced Documents

2.1 *ASTM Standards:*²

[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 \(UV\)](#)

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 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.

[Lamp Apparatus for Exposure of Nonmetallic Materials](#)
[G169 Guide for Application of Basic Statistical Methods to Weathering Tests](#)

[G177 Tables for Reference Solar Ultraviolet Spectral Distributions: Hemispherical on 37° Tilted Surface](#)

2.2 *ISO Standard:*³

[ISO 4892-3 Plastics—Methods of Exposure to Laboratory Light Sources—Part 3, Fluorescent UV Lamps](#)

2.3 *SAE Standard:*⁴

[SAE J2020 Accelerated Exposure of Automotive Exterior Materials Using a Fluorescent UV and Condensation Apparatus](#)

3. Terminology

3.1 The definitions in Terminology [G113](#) are applicable to this practice.

4. Significance and Use

4.1 The ability of a plastic material to resist deterioration of its electrical, mechanical, and optical properties caused by exposure to light, heat, and water can be very significant for many applications. This practice is intended to induce property changes associated with end-use conditions, including the effects of ultraviolet solar irradiance, moisture, and heat. The exposure used in this practice is not intended to simulate the deterioration caused by localized weather phenomena, such as, atmospheric pollution, biological attack, and saltwater exposure. (**Warning**—Variation in results may be expected when operating conditions are varied within the accepted limits of this practice. Therefore, no reference to the use of this practice should be made unless accompanied by a report prepared in accordance with Section 8 that describes the specific operating conditions used. Refer to Practice [G151](#) for detailed information on the caveats applicable to use of results obtained in accordance with this practice.)

NOTE 2—Additional information on sources of variability and on strategies for addressing variability in the design, execution, and data analysis of laboratory-accelerated exposure tests is found in Guide [G141](#).

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

*A Summary of Changes section appears at the end of this standard