



Standard Practice for Enclosed Carbon-Arc Exposures of Plastics¹

This standard is issued under the fixed designation D 6360; 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.

1. Scope

1.1 This practice covers specific procedures and test conditions that are applicable for exposure of plastics in enclosed carbon-arc devices conducted in accordance with Practices G 151 and G 153. This practice also covers the preparation of test specimens, the test conditions suited for plastics, and the evaluation of test results.

NOTE 1—Enclosed carbon-arc exposures are described in Practice G 23, which described very specific equipment designs. Practice G 23 is being replaced by Practice G 151, which describes performance criteria for all exposure devices that use laboratory light sources, and by Practice G 153, which gives requirements for exposing nonmetallic materials in enclosed carbon-arc devices. Practice G 23 will be balloted for withdrawal before December 2000.

1.2 This practice does not cover filtered open-flame carbon-arc exposures of plastics, which are covered in Practice D 1499. Practice D 5031 describes enclosed carbon-arc exposures of paints and related coatings.

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 2—This practice is not equivalent to any ISO practice for laboratory accelerated exposures of plastics.

2. Referenced Documents

2.1 ASTM Standards:

- D 1499 Practice for Operating Light- and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Plastics²
- D 3980 Practice for Interlaboratory Testing of Paint and Related Materials³
- D 5031 Practice for Conducting Tests on Paints and Related Coatings and Materials Using Enclosed Carbon-Arc Light- and Water-Exposure Apparatus³
- D 5870 Practice for Calculating Property Retention Index of Plastics⁴

¹ This practice is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.50 on Permanence Properties. Current edition approved Jan. 10, 1999. Published April 1999.

² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 06.01.

⁴ Annual Book of ASTM Standards, Vol 08.03.

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method⁵

G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials⁵

G 113 Terminology Relating to Natural and Artificial Weathering Tests of Nonmetallic Materials⁵

G 141 Guide for Addressing Variability in Exposure Testing on Nonmetallic Materials⁵

G 147 Practice for Conditioning and Handling of Nonmetallic Materials for Natural and Artificial Weathering Tests⁵

G 151 Practice for Exposing Nonmetallic Materials in Accelerated Test Devices That Use Laboratory Light Sources⁵

G 152 Practice for Operating Open-Flame Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials⁵

G 153 Practice for Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials⁵

3. Terminology

3.1 The definitions in Terminology G 113 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 sunlight, 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.

NOTE 3—**Caution:** 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 shall be made unless accompanied by a report prepared in accordance with Section 9 that describes the specific operating conditions used. Refer to Practice G 151 for detailed information on the caveats applicable to use of results obtained in accordance with this practice.

NOTE 4—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 G 141.

⁵ Annual Book of ASTM Standards, Vol 14.02.