



Designation: D4364 – 13 (Reapproved 2022)^{ε1}

Standard Practice for Performing Outdoor Accelerated Weathering Tests of Plastics Using Concentrated Sunlight¹

This standard is issued under the fixed designation D4364; 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.

^{ε1} NOTE—Reapproved with editorial changes in January 2022.

1. Scope*

1.1 This practice covers the use of Fresnel-reflecting concentrators that use the sun as a source of ultraviolet (UV) and longer wavelength radiation. Such devices are used in the outdoor accelerated exposure testing of plastics.

1.2 This practice provides a procedure for performing outdoor accelerated exposure testing of plastics using a Fresnel-reflector outdoor accelerated weathering test machine. The apparatus is described herein and in Practice G90 more completely.

1.3 This practice is applicable to a range of plastic materials including, but not limited to, plastic films, sheets, laminates, and extruded and molded products in a variety of shapes and sizes, as specified in 8.2 and 8.3.

1.4 This practice describes test conditions that attempt to simulate plastics exposures in desert and subtropical climates. Specimen preparation, property testing procedures, and the evaluation of results are covered in existing test methods or specifications for specific materials.

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

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Specific precautionary statements are given in Section 7.

NOTE 1—This standard is equivalent to ISO 877-3: 2009.

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

- D859 Test Method for Silica in Water
- D883 Terminology Relating to Plastics
- D1435 Practice for Outdoor Weathering of Plastics
- D1600 Terminology for Abbreviated Terms Relating to Plastics
- D1898 Practice for Sampling of Plastics (Withdrawn 1998)³
- D4141/D4141M Practice for Conducting Black Box and Solar Concentrating Exposures of Coatings
- D4517 Test Method for Low-Level Total Silica in High-Purity Water by Flameless Atomic Absorption Spectroscopy
- E772 Terminology of Solar Energy Conversion
- E824 Test Method for Transfer of Calibration From Reference to Field Radiometers
- G7/G7M Practice for Natural Weathering of Materials
- G24 Practice for Conducting Exposures to Daylight Filtered Through Glass
- G90 Practice for Performing Accelerated Outdoor Weathering of Materials Using Concentrated Natural Sunlight
- G113 Terminology Relating to Natural and Artificial Weathering Tests of Nonmetallic Materials

2.2 ISO Standard:⁴

- ISO 877-3: 2009 Plastics—Methods of exposure to solar radiation—Part 3: Intensified weathering using concentrated solar radiation

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.

³ The last approved version of this historical standard is referenced on www.astm.org.

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

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