



Standard Terminology Relating to Natural and Artificial Weathering Tests of Nonmetallic Materials¹

This standard is issued under the fixed designation G113; 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 terminology standard covers terms that relate to the durability testing of Nonmetallic Materials using natural and artificial weathering exposure techniques.

1.2 It is the intent of this terminology standard to include those weathering terms in wide use in ASTM for which standard definitions appear desirable.

2. Referenced Documents

2.1 ASTM Standards:²

D9 Terminology Relating to Wood and Wood-Based Products

D4023 Terminology Relating to Humidity Measurements (Withdrawn 2002)³

E41 Terminology Relating To Conditioning

E772 Terminology of Solar Energy Conversion

E973 Test Method for Determination of the Spectral Mismatch Parameter Between a Photovoltaic Device and a Photovoltaic Reference Cell

G84 Practice for Measurement of Time-of-Wetness on Surfaces Exposed to Wetting Conditions as in Atmospheric Corrosion Testing

G90 Practice for Performing Accelerated Outdoor Weathering of Nonmetallic Materials Using Concentrated Natural Sunlight

G201 Practice for Conducting Exposures in Outdoor Glass-Covered Exposure Apparatus with Air Circulation

2.2 AATCC Method:⁴

16 Colorfastness to Light

2.3 ANSI Standards:⁵

ANSI/NCSL Z540-2-1997 American National Standard for Expressing Uncertainty—U.S. Guide to the Expression of Uncertainty in Measurement

ISO 9370 Plastics -- Instrumental Determination of Radiant Exposure in Weathering Tests -- General Guidance and Basic Test Method

3. Significance and Use

3.1 This terminology is not intended to supersede the requirements of similar definitions in certain other documents, but is intended to provide a listing of terms that are in current widespread usage, and their context in relation to weathering.

4. Terminology

4.1 Definitions:

accelerated outdoor weathering, *n*—outdoor weathering using the sun as the source of irradiance, and where the rate of deterioration is accelerated by increasing one or more of the influencing parameters above a level obtained in the natural environment.

DISCUSSION—Examples of these types of exposures are found in Practice **G90** and Practice **G201**.

acceleration factor, *n*—the ratio of exposure time required to produce a specified amount of change in a material by one exposure test divided by the exposure time required to produce the same change by another exposure test.

DISCUSSION—Acceleration factors must be used with great caution because they vary between materials (including different formulations of the same material) and are strongly dependent on the exposure conditions and variability of both the natural and laboratory accelerated exposures. Acceleration factors may also vary depending on the level of material property change used to determine the acceleration factor. Do not ratio irradiance in laboratory accelerated tests to irradiance in outdoor exposures, or use equivalent radiant exposures to estimate time to fail in outdoor exposures. These calculations ignore differences in temperature and moisture between the accelerated test and exterior exposures, and in the spectral power distributions of the laboratory light source and sunlight.

¹ This terminology is under the jurisdiction of ASTM Committee **G03** on Weathering and Durability and is the direct responsibility of Subcommittee **G03.92** on Terminology.

Current edition approved Dec. 1, 2016. Published December 2016. Originally approved in 1992. Last previous edition approved in 2014 as G113 – 14. DOI: 10.1520/G0113-16.

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 Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709, <http://www.aatcc.org>.

⁵ Available from National Conference of Standards Laboratories, 1800 30th St., Suite 305B, Boulder, CO 80301.