



Designation: D8105 – 18 (Reapproved 2024)

Standard Guide for Use and Application of Geosynthetic Reinforcement Reduction Factor Test Results¹

This standard is issued under the fixed designation D8105; 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 guide presents a description of how to use test results from reduction factor test reports for reinforcement geosynthetics. It is based solely on testing and reporting requirements as established in American Association of State Highway and Transportation Officials (AASHTO) standard AASHTO R 69-15, Standard Practice for Determination of Long-Term Strength for Geosynthetic Reinforcement. AASHTO R 69-15 is used to determine the long-term allowable material strength, T_{al} , that is solely product property performance dependant.

1.2 This guide is intended to assist designers and users of reinforcement geosynthetics when reviewing reports of reduction factor testing efforts. This guide is not intended to replace education or experience, or other alternative design procedures. This guide is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. Not all aspects of this guide may be applicable in all circumstances. The word “standard” in the title of this document means only that the document has been approved through the ASTM consensus process.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.4 *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.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standard-*

ization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

D4355/D4355M Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus

D4595/D4595M Test Method for Tensile Properties of Geotextiles by the Wide-Width Method

D4603 Test Method for Determining Inherent Viscosity of Poly(Ethylene Terephthalate) (PET) by Glass Capillary Viscometer

D5262 Test Method for Determining the Unconfined Tension Creep and Creep Rupture Behavior of Planar Geosynthetics Used for Reinforcement Purposes

D5721 Practice for Air-Oven Aging of Polyolefin Geomembranes

D5818 Practice for Exposure and Retrieval of Samples to Evaluate Installation Damage of Geosynthetics

D6637/D6637M Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method

D6992 Test Method for Accelerated Tensile Creep and Creep-Rupture of Geosynthetic Materials Based on Time-Temperature Superposition Using the Stepped Isothermal Method

D7409 Test Method for Carboxyl End Group Content of Polyethylene Terephthalate (PET) Yarns

2.2 AASHTO Standard:³

AASHTO R 69-15 Standard Practice for Determination of Long-Term Strength for Geosynthetic Reinforcement

¹ This guide is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.01 on Mechanical Properties.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.