
Standard Specification for Geosynthetic Specification for Highway Applications

AASHTO Designation: M 288-21

Technically Revised: 2021

Editorially Revised: 2021

Technical Subcommittee: 4e, Joints, Bearings, and Geosynthetics



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1. SCOPE

- 1.1. This is a materials specification covering geosynthetics for use in subsurface drainage, separation, stabilization, erosion control, temporary silt fence, paving, and soil (walls and slopes). This is a material purchasing specification and design review of use is recommended.
- 1.2. This specification sets forth a set of physical, mechanical, and endurance properties that must be met or exceeded by the geosynthetic being manufactured.
- 1.3. In the context of quality systems and management, this specification represents a manufacturing quality control (MQC) document. However, its general use is essentially as a recommended design document.
- 1.4. This specification is intended to assure both good quality and performance of geosynthetics used as listed in Section 1.1 but is possibly not adequate for the complete specification in a specific situation, especially in reinforcement applications. Additional tests, more restrictive values for the tests indicated, or values based on project specific design may be necessary under conditions of a particular application.
- 1.5. Minimum strength values provided in this specification are based on geosynthetic survivability from installation stresses. Designers should be aware that the classes and/or property requirements in this specification reflect this basic premise. Refer to Appendix X1 for most geosynthetic construction guidelines.

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- R 69, Determination of Long-Term Strength for Geosynthetic Reinforcement
 - T 88, Particle Size Analysis of Soils
 - T 90, Determining the Plastic Limit and Plasticity Index of Soils
 - T 99, Moisture–Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop
 - T 289, Determining pH of Soil for Use in Corrosion Testing
- 2.2. *ASTM Standards:*¹
- D123, Standard Terminology Relating to Textiles
 - D276, Standard Test Methods for Identification of Fibers in Textiles

- D4354, Standard Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing
- D4355/D4355M, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc-Type Apparatus
- D4439, Standard Terminology for Geosynthetics
- D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity
- D4533/D4533M, Standard Test Method for Trapezoid Tearing Strength of Geotextiles
- D4595, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method
- D4603, Standard Test Method for Determining Inherent Viscosity of Poly(Ethylene Terephthalate) (PET) by Glass Capillary Viscometer
- D4632/D4632M, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
- D4751, Standard Test Methods for Determining Apparent Opening Size of a Geotextile
- D4759, Standard Practice for Determining the Specification Conformance of Geosynthetics
- D4873/D4873M, Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
- D5035, Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
- D5141, Standard Test Method for Determining Filtering Efficiency and Flow Rate of the Filtration Component of a Sediment Retention Device
- D5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles
- D6140, Standard Test Method to Determine Asphalt Retention of Paving Fabrics Used in Asphalt Paving for Full-Width Applications
- D6241, Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
- D6637/D6637M, Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method
- D7409, Standard Test Method for Carboxyl End Group Content of Polyethylene Terephthalate (PET) Yarns
- D7737, Standard Test Method for Individual Geogrid Junction Strength

2.3. *U.S. Environmental Protection Agency:*

- EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities

2.4. *Other Standards:*

- ISO 13438:2004(en), Geotextiles and geotextile-related products—Screening test method for determining the resistance to oxidation
- GRI GG8, Determination of the Number Average Molecular Weight of PET Yarns Based on a Relative Viscosity Value

3. TERMINOLOGY

- 3.1. *effective design temperature*—The temperature that is halfway between the average yearly air temperature and the normal daily air temperature for the warmest month at the reinforced soil structure site.