



Designation: D6461/D6461M – 22

Standard Specifications for Silt Fence Materials¹

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1. Scope*

1.1 This specification covers requirements and test methods for geotextile fabrics and associated components used in temporary silt fence applications. **Table 1** is a material purchasing specification based on AASHTO M 288. **Table 2** is a specification to be used in areas of high water flow. The specification in **Table 2** is a higher strength, higher flow option than **Table 1**. **Table 2** properties can withstand more hydraulic flow than the specification listed in **Table 1**. The **Table 2** specification should be used in sensitive applications, such as areas near regulated waters and wetlands, but also areas that are prone to high flow runoff that require increased structural stability. The design professional has the option of **Table 2** where the specifications listed in **Table 1** are not sufficient to meet the demand of runoff.

1.2 Both specifications are applicable to the use of a geotextile as a vertical permeable interceptor designed to remove suspended soil from overland, nonconcentrated water flow. The function of a temporary silt fence is to trap and allow settlement of soil particles from sediment-laden water. The purpose is to greatly limit the transport of eroded soil from construction sites and other areas affected by water runoff.

NOTE 1—It should be noted that proper installation and maintenance are critical for the effective functioning of silt fence.

1.3 The tests used to characterize the silt fence are intended to ensure good workmanship and quality and are not necessarily adequate for design purposes in view of the wide variety of possible sediments and performance objectives.

1.4 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 This specification is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.06 on Geosynthetic Specifications.

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NOTE 2—Although the **Table 1** specification should be acceptable in most erosion control applications, it should be noted that an alternative silt fence specification for a higher water flow rate, listed in **Table 2**, may be required by the engineers in areas that are susceptible to higher water runoff; using **Table 2** specification will minimize safety hazards such as hydroplaning in these areas.

1.5 *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 Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing
- D4355/D4355M Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus
- D4491/D4491M Test Methods for Water Permeability of Geotextiles by Permittivity
- D4533/D4533M Test Method for Trapezoid Tearing Strength of Geotextiles
- D4632/D4632M Test Method for Grab Breaking Load and Elongation of Geotextiles
- D4751 Test Methods for Determining Apparent Opening Size of a Geotextile
- D4759 Practice for Determining the Specification Conformance of Geosynthetics
- D4873/D4873M Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
- D6241 Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
- D6637/D6637M Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method

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.

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



TABLE 1 Temporary Silt Fence Material Property Requirements

	Test Methods	Supported ^A Silt Fence	Unsupported ^A Silt Fence	Type of Value
Grab Strength	ASTM D4632/D4632M			
	Machine direction (MD)	400 N [90 lb]	550 N [124 lb]	MARV
	Cross-machine direction (XD)	400 N [90 lb]	450 N [101 lb]	MARV
Permittivity	ASTM D4491/D4491M	0.05 sec-1	0.05 sec-1	MARV
Apparent Opening Size	ASTM D4751	0.60 mm (30) U.S. sieve	0.60 mm (30) U.S. sieve	Max. ARV
Ultraviolet Stability	ASTM D4355/D4355M	70 % after 500 h of exposure	70 % after 500 h of exposure	Typical
Trapezoidal Tearing Strength	ASTM D4533/D4533M			
	Machine direction (MD)	267 N [60 lb]	267 N [60 lb]	
	Cross-machine direction (XD)	267 N [60 lb]	267 N [60 lb]	
CBR Puncture	ASTM D6241	1445 N [325 lb]	1445 N [325 lb]	
Post Spacing	See 7.3			

^A Silt fence support shall consist of 14 gauge [1.63 mm] steel wire with maximum openings of 6 by 6 in. [150 by 150 mm] or prefabricated polymer mesh of 200 by 200 lb/ft [2900 N/m] in accordance with Test Method **D6637/D6637M**.

TABLE 2 Temporary Silt Fence Material Property Requirements Under High Water Flow Conditions

	Test Methods	Silt Fence ^A	Type of Value
Grab Strength	ASTM D4632/D4632M		
	Machine direction (MD)	1157 N [260 lb]	MARV
	Cross-machine direction (XD)	801 N [180 lb]	MARV
Permittivity	ASTM D4491/D4491M	1.0 sec-1	MARV
Flow Rate	ASTM D4491/D4491M	[70 gal/min/ft ²] 2852 LPM/m ²	
Apparent Opening Size	ASTM D4751	0.60 mm (30) U.S. sieve	Max. ARV
Ultraviolet Stability	ASTM D4355/D4355M	70 % after 500 h of exposure	Typical
Trapezoidal Tearing Strength	ASTM D4533/D4533M		
	Machine direction (MD)	267 N [60 lb]	
	Cross-machine direction (XD)	267 N [60 lb]	
CBR Puncture	ASTM D6241	1445 N [325 lb]	
Post Spacing	See 7.4		

^A If the required grab strength for the silt fence in high water conditions cannot be met, support shall consist of 14 gauge [1.63 mm] steel wire with maximum openings of 6 by 6 in. [150 by 150 mm] or prefabricated polymer mesh of 200 by 200 lb/ft [2900 N/m] in accordance with Test Method **D6637/D6637M**.

2.2 AASHTO Standard:³

AASHTO M 288-15 Standard Specification for Geotextile Specification for Highway Applications

3. Materials and Manufacture

3.1 Fibers used in the manufacture of geotextiles for silt fence, and the threads used in joining geotextiles by sewing, shall consist of long-chain synthetic polymers composed of at least 95 % by weight of polyolefin or polyester. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages.

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>.

3.2 Geotextiles and related materials used for temporary silt fence shall conform to the physical requirements of Sections 7 and 8.

3.3 All property values, with the exception of apparent opening size (AOS), in this specification represent minimum average roll values (MARV) in the weakest principle direction (that is, average test results of any roll in a lot sampled for conformance or quality assurance testing shall meet or exceed the minimum value provided herein). Values for AOS represent maximum average roll values.

4. Sampling, Testing, and Acceptance

4.1 Silt fence shall be subject to sampling and testing to verify conformance with this specification. Sampling for testing shall be in accordance with Practice **D4354**. Acceptance