



Designation: **D6461/D6461M—18** **D6461/D6461M – 22**

Standard Specifications for Silt Fence Materials¹

This standard is issued under the fixed designation D6461/D6461M; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

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~~ M 288. **Table 2** is a specification to be used in areas of high water flow. The specification ~~on~~ 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 ~~on~~ 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~~ 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 equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in ~~non-conformance~~ nonconformance with the standard.

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.*

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.

Current edition approved ~~Jan. 1, 2018~~ Jan. 1, 2022. Published ~~February 2018~~ January 2022. Originally approved in 1999. Last previous edition approved in ~~2016~~ 2018 as ~~D6461/D6461M – 16a~~ D6461/D6461M – 18. DOI: ~~10.1520/D6461-D6461M-18~~ 10.1520/D6461_D6461M-22.

*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	400N	550N	MARV
	Machine direction (MD)	400 N [90 lb] [90 lb]	550 N [124 lb] [124 lb]	MARV
	Cross-machine direction (XD) X-Machine Direction	400 N [90 lb] 400N [90 lb]	450 N [101 lb] 450N [101 lb]	MARV MARV
Permittivity	ASTM D4491/D4491M	0.05 sec-1	0.05 sec-1	MARV
Apparent Opening Size	ASTM D4751	0.60mm	0.60mm	Max. ARV
Apparent Opening Size	ASTM D4751	0.60 mm (30) U.S. sieve (30) US Sieve	0.60 mm (30) U.S. sieve (30) US 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 [1.63mm][1.63 mm] steel wire with maximum openings of 6 by 6 in. [150 by 150mm][150 mm] or prefabricated polymer mesh of 200 by 200 lb/ft [2900 N/m][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	Supported ^A Silt Fence	Type of Value
Grab Strength	ASTM D4632/D4632M		
	Machine Direction	1157N	MARV
	Machine direction (MD)	1157 N [260 lb] [260 lb]	MARV
	Cross-machine direction (XD) X-Machine Direction	801 N [180 lb] 801N [180 lb]	MARV MARV
Permittivity	ASTM D4491/D4491M	1.0 sec-1	MARV
Flow Rate	ASTM D4491/D4491M	[70 gal/min/ft ²] 2852 LPM/m ² 2852 LPM/m ²	
Apparent Opening Size	ASTM D4751	0.60mm	Max. ARV
Apparent Opening Size	ASTM D4751	0.60 mm (30) U.S. sieve (30) US 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 Silt fence—If the required grab strength for the silt fence in high water conditions cannot be met, support shall consist of 14 gauge [1.63mm][1.63 mm] steel wire with maximum openings of 6 by 6 in. [150 by 150mm][150 mm] or prefabricated polymer mesh of 200 by 200 lb/ft [2900 N/m][2900 N/m] in accordance with Test Method [D6637/D6637M](#).



2. Referenced Documents

2.1 ASTM Standards:²

D123 [Terminology Relating to Textiles](#)

D276 [Test Methods for Identification of Fibers in Textiles](#) (Withdrawn 2021)³

~~D653 Terminology Relating to Soil, Rock, and Contained Fluids~~

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](#)

~~D4439 Terminology for Geosynthetics~~

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](#)

2.2 AASHTO Standard:³

~~AASHTO M288-15~~ [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.

3.2 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 shall be based on testing of conformance samples obtained using Procedure A of Practice D4354. A lot size for conformance or quality assurance sampling shall be considered to be the shipment quantity of the given product or a truckload of the given product, whichever is smaller.

4.2 Testing shall be performed in accordance with the test methods referenced in this specification for the indicated application. The number of specimens to test per sample (see ~~Terminology D653~~) is specified by each test method. Geotextile product acceptance shall be based on Practice D4759. Product acceptance is determined by comparing the average test results of all specimens within a given sample to the specification MARV. Refer to Practice D4759 for more details regarding geotextile acceptance procedures.

5. Certification

5.1 The contractor shall provide to the ~~Site Engineer~~ site engineer a certificate stating the name of the manufacturer, product name,

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 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>.