



Standard Test Method for Determining the Flow Rate of Water and Suspended Solids from a Geotextile Bag¹

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1. Scope

1.1 This test method is used to determine the flow rate of water and suspended solids through a geosynthetic permeable bag used to contain high water content slurry such as dredged material.

1.2 The results for the water and sediment that pass through the geotextile bag are shown as liters of water per time period, and the percent total suspended solids in milligrams per liter or parts per million.

1.3 The flow rate is the average rate of passage of a quantity of solids and water through the bag over a specific time period.

1.4 This test method requires several pieces of specified equipment such as an integrated water sampler, analytical balance, geotextile container, frame to hold the geotextile container, and clean containers to collect the decant water and a representative sample of high water content material from the proposed dredge area or slurry source.

1.5 The values stated in SI units are to be regarded as the standard. The values in parentheses are provided for information only.

1.6 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D123 Terminology Relating to Textiles

D653 Terminology Relating to Soil, Rock, and Contained Fluids

¹ This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.03 on Permeability and Filtration.

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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.

D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products(RECPs) for Testing

D4439 Terminology for Geosynthetics

D4759 Practice for Determining the Specification Conformance of Geosynthetics

3. Terminology

3.1 Definitions:

3.1.1 For definitions of other terms relating to geosynthetics, refer to Terminology D4439

3.1.2 For definitions of textile terms, refer to Terminology D123

3.1.3 For definitions of soil terms, refer to Terminology D653

3.1.4 high water content material, *n*—a slurry of water and solids exhibiting the properties of a liquid, typically having a percent solids by weight smaller than 50% (water content greater than 100%), and the size of the solid particles tend to be very fine grained (<0.064 mm).

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *flow rate, n*—volume of fluid per unit time, expressed as an average, that passes through a geotextile hanging bag.

3.2.2 *geotextile hanging bag, n*—bag, tube, sock, or container designed and fabricated from a single or a combination of layers of permeable geosynthetic to retain fine-grained particles such as found in dredged material, for subsequent dewatering of the contained semi fluid materials.

4. Summary of Test Method

4.1 A geotextile bag is constructed by sewing one or more layers of geotextiles together to form a container that will support and contain a measured amount of saturated dredged material or other high water content material.

4.1.1 The amount of water and sediment that flows through the geotextile container is collected at given time intervals and measured. The amount of sediment passing the geotextile container is determined as the total suspended solids.

4.2 Use material from the designated area to be dredged at the estimated initial percent solids as the actual field conditions, or the source of the high water content material.