



# Standard Specification for Circular-Knit Geotextile for Use in Subsurface Drainage Applications<sup>1</sup>

This standard is issued under the fixed designation D 6707; 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 circular-knit geotextiles for use on the outside of perforated pipes in drainage applications.

1.2 The tests used to characterize the geotextile are intended to ensure good workmanship and quality, and are not necessarily adequate for design purposes in view of the importance of environmental factors and specific performance objectives. Tests have been selected with essentially neutral aqueous systems in mind. Other tests may be necessary to establish chemical resistance and durability under the conditions of a particular application.

1.3 *This standard may involve hazardous materials, operations, and equipment. 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 requirements prior to use.*

## 2. Referenced Documents

### 2.1 ASTM Standards:

D 4491 Test Methods for Water Permeability of Geotextiles by Permittivity<sup>2</sup>

D 4751 Test Method for Determining Apparent Opening Size of a Geotextile<sup>2</sup>

D 6241 Test Method for the Static Puncture Strength of Geotextiles and Geotextile Related Products Using a 50-mm Probe<sup>2</sup>

## 3. Terminology

### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *circular knit*—a structure produced by interlooping one or more ends of yarn or comparable material in a continuously circular orientation around the fabric.

3.1.2 *filtration*—the equilibrium soil to geotextile system that allows for adequate liquid flow with limited soil loss across the plane of the geotextile over the service lifetime compatible with the application under consideration.

3.2 Definitions in this standard are in accordance with

Terminology D 123 and D 4439, unless otherwise specified.

## 4. Classification

4.1 The circular-knit geotextiles covered by this specification are classified as follows:

4.1.1 Type A: fabric

4.1.2 Type H: fabric

4.2 The characteristics of the two types of geotextile are given in 8.1 below.

## 5. Significance and Use

5.1 Circular knit geotextiles have been used extensively for many years as filtration geotextiles in combination with subsurface drainage pipes.

5.2 The test procedures and recommendations referred to in this standard are considered adequate to determine the acceptable performance properties of these geotextiles and are recommended to specifiers and users of these products for acceptance testing.

## 6. Materials and Manufacture

6.1 The geotextile shall be manufactured from polymeric materials.

6.2 The geotextiles are manufactured by a circular knit process to ensure a consistent, continuous fabric without seams along its machine direction in order to envelope the perforated pipe without flaws.

## 7. Fabrication Procedures

7.1 The circular knit geotextiles, when applied to the perforated tubing, fit snugly and uniformly over the entire exterior surface of the pipe.

7.2 If for any reason the circular knitted geotextile fabric becomes damaged, repair of damaged area may be conducted in the field prior to installation, by wrapping or overlaying the damaged area with similar knitted fabric and attaching the fabric either by tying or with suitable adhesive tape.

7.3 The overlaid fabric must be secured in such a manner so as to prevent the patch from moving or shifting during normal installation procedures.

7.4 The overlaid fabric must cover an area extending a minimum of 45 cm (18 in.) on either side of the damaged area and must cover the entire circumference of the wrapped pipe in the area where the repair is being made.

<sup>1</sup> This specification 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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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.09.

## 8. Physical Requirements

### 8.1 Table of Values:

Test Method	Type A	Type H
D 4491 Water Permittivity	2.4 s (-1) min	2.75 s (-1) min
D 4751 AOS	0.60 mm max	0.425 mm max
D 6241 Puncture strength (N)	800 min	800 min

8.1.1 The physical values provided in this standard are not intended to address all soil conditions which may be encountered.

8.1.2 Specialty circular knit geotextiles may be available for other soil conditions.

8.1.3 Fabric designed to fit nominal O.D. of pipe.

## 9. Quality Assurance

9.1 When specified in the contract or purchase order, or when requested by the purchaser, the supplier shall affirm that the geotextile was manufactured, inspected and tested in accordance with this specification and that it has been found to meet the requirements of this specification.

## 10. Keywords

10.1 circular-knit; drainage pipe; fabric; filter; geotextile; perforated pipe

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