



Designation: D7056 – 07

## Standard Test Method for Determining the Tensile Shear Strength of Pre-Fabricated Bituminous Geomembrane Seams<sup>1</sup>

This standard is issued under the fixed designation D7056; 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 reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This test method presents the procedures used for determining the quality of prefabricated bituminous geomembrane (PBG) bonded seams subjected to a shear test. It describes a destructive quality control test used to determine the integrity of PBGM seams.

1.2 This test procedure is intended for PBGM only.

1.3 The type of thermal field seaming technique used to construct PBGM seams include the following.

1.3.1 Torch-on—This technique melts two PBGM surfaces to be seamed by running a flame from a propane torch between them. Pressure is applied on the top or bottom, or both PBGM, forcing together both surfaces to form a continuous bond.

1.3.2 Hot Air—This technique introduces high-temperature air or gas between two PBGM surfaces to facilitate melting. Pressure is applied on the top or bottom, or both PBGM, forcing together both surfaces to form a continuous bond.

1.4 *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:*<sup>2</sup>

D638 Test Method for Tensile Properties of Plastics

D5199 Test Method for Measuring the Nominal Thickness of Geosynthetics

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.10 on Geomembranes.

Current edition approved June 1, 2007. Published July 2007. Originally approved in 2004. Last previous edition approved in 2004 as D7056 – 04. DOI: 10.1520/D7056-07.

<sup>2</sup> 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. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *geomembrane, n*—an essentially impermeable geosynthetic composed of one or more synthetic sheets.

3.1.2 *geosynthetic, n*—a planar product manufactured from bitumen or polymeric material used with soil, rock, earth or other geotechnical engineering related material as an integral part of a man-made project, structure or system.

3.1.3 *geotextile, n*—any permeable textile material used in foundation, soil, rock, earth, or any other geotechnical engineering related material, as an integral part of a man made project, structure, or system.

3.1.4 *Prefabricated Bituminous Geomembrane (PBG), n*—a material fabricated in a plant and consisting principally of non-woven polyester textile, impregnated by a blend of oxidized or polymer-modified bitumen incorporating filler.

3.1.5 *Quality assurance, n*—all planned and systematic actions necessary to provide adequate confidence that an item or a facility will perform satisfactorily in service.

3.1.6 *Quality control, n*—the operational techniques and the activities, which sustain a quality of material, product, system, or service that will satisfy given needs; also the use of such techniques and activities.

### 4. Significance and Use

4.1 The use of PBGM as barrier materials to restrict liquid migration from one location to another in soils has created a need for a standard test method to evaluate the quality of PBGM seams. In the case of PBGM, it has become evident that seams can exhibit separation in the field under certain conditions. Although this is an index type test method used for quality assurance and quality control purposes, it is also intended to provide the quality assurance engineer with sufficient seam shear data to evaluate seam quality. Recording and reporting data will allow the quality assurance engineer to take measures necessary to ensure the repair of seams with unacceptable strength during facility construction, and therefore, minimize the potential for seam separation in service.

### 5. Apparatus

5.1 Tensile instrumentation shall meet the requirements outlined in Test Method D638.