



Designation: D 7274 – 06

Standard Test Method for Mineral Stabilizer Content of Prefabricated Bituminous Geomembranes (BGM)¹

This standard is issued under the fixed designation D 7274; 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 test method covers the procedure for the determination of mineral stabilizer content in prefabricated bituminous geomembranes (BGM) by calcination.

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

1.3 *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

D 4354 Practice for Sampling of Geosynthetics for Testing

D 4439 Terminology for Geosynthetics

D 6455 Guide for the Selection of Test Methods for Prefabricated Bituminous Geomembranes (PBG)

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *prefabricated bituminous geomembrane (BGM), 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.

3.1.2 *mineral stabilizer, n*—a fine, water-insoluble inorganic material, used in admixture with solid or semisolid bituminous materials.

3.2 For definitions of other terms used in this test method, refer to Terminology D 4439.

4. Significance and Use

4.1 Bituminous geomembranes, whether made from oxidized or polymer-modified bitumen, may contain a significant

amount of mineral stabilizer. The amount of mineral stabilizer used in a bituminous geomembrane has an effect on several physical properties, including but not limited to cold temperature, flexibility, and asphalt penetration (see Guide D 6455 for a list of BGM properites).

5. Apparatus

5.1 *Porcelain Crucible*, 30 cm³ capacity, or equivalent.

5.2 *Analytical Balance*, capable of weighing to within ± 0.001 g.

5.3 *Bunsen Burner*.

5.4 *Muffle Furnace*, capable of maintaining a temperature of $600 \pm 25^\circ\text{C}$ ($1110 \pm 45^\circ\text{F}$).

6. Hazards

6.1 Calcination of BGM involves the use of open flame and will produce black smoke. This procedure should be carried out under a fume hood, away from any flammable material.

7. Sampling and Conditioning

7.1 Sampling shall be conducted according to Practice D 4354.

7.2 Remove any surface material from the sample at the location where the test specimen will be taken. This operation will be easier when location is chosen on the side of the BGM with film surfacing or on the film-covered lap. In that case, the BGM may be cooled to about -30°C for 2 hours and the film may be peeled off.

7.3 Using a hot spatula or knife, sample 5 ± 1 g of bitumen from the BGM, taking care of not scraping down to the reinforcing geotextile.

7.4 Condition samples for a minimum of 4 h at $23 \pm 3^\circ\text{C}$ ($73.4 \pm 5.4^\circ\text{F}$) and $50 \pm 5\%$ relative humidity before testing.

8. Procedure

8.1 Preheat the muffle furnace at $600 \pm 25^\circ\text{C}$ ($1110 \pm 45^\circ\text{F}$).

8.2 Weigh the porcelain crucible to the nearest 0.001 g (C_1).

8.3 Place in the crucible the sample obtained in 7.3 and weigh to the nearest 0.001 g (C_2).

8.4 Under the fume hood, place the crucible over the Bunsen burner flame until combustion is completed.

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

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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.