



Designation: C 1559 – 03

Standard Test Method for Determining Wicking of Glass Fiber Blanket Insulation (Aircraft Type)¹

This standard is issued under the fixed designation C 1559; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers a laboratory procedure for evaluating the tendency of, aircraft type, glass fiber blanket insulation to wick water.

1.2 The wicking characteristics of materials may be affected by environmental conditions such as temperature and humidity. Values obtained as a result of this test method may not adequately describe the wicking characteristics of materials subject to conditions other than those indicated in the test method.

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:*

C 168 Terminology Relating to Thermal Insulating Materials²

C 390 Criteria for Sampling and Acceptance of Preformed Insulation Lots²

C 800 Specification for Glass Fiber Blanket Insulation (Aircraft Type)²

3. Terminology

3.1 *Definitions*—Terminology C 168 shall be considered as applying to the terms used in this specification.

3.1.1 *wicking*—the infiltration of a wetting liquid into a glass fiber blanket by capillary attraction.

4. Summary of Test Method

4.1 The insulation is suspended in de-ionized or distilled water so that the bottom of the specimen is submerged to one

inch below the water surface; distance of wicking is noted every 24 h for 96 h and then again at the end of 168 h.

5. Significance and Use

5.1 The tendency of the insulation toward wicking can result in an increase in weight and a resultant potential degradation in the properties of the insulation.

6. Apparatus

6.1 As described in the Procedure section of this test method.

6.2 *Steel Rule*, accurate to ± 0.05 in. (1 mm).

7. Sampling, Test Specimens, and Test Units

7.1 Six specimens shall be tested for each procedure, cut with the axis parallel to the length and six cut with the axis perpendicular to the length from a representative package.

7.2 The specimens shall be 1- by 6-in. (25.4- by 152.4-mm) by full sample thickness.

7.3 The insulation shall be tested without facing or jacketing.

8. Conditioning

8.1 As described in the Procedure section of this test method.

9. Procedure A—Wicking as Received

9.1 Condition specimens for at least 24 h at $73 \pm 4^\circ\text{F}$ ($23 \pm 2^\circ\text{C}$) and $50 \pm 5\%$ relative humidity.

9.2 With fine wire, fasten loosely six specimens (three cut with the axis parallel to the length and three cut with the axis perpendicular to the length)³ to a grease-free 0.025 to 0.035 in. (0.64 to 0.89 mm) 8 by 8 mesh stainless steel wire screen. Position this assembly in an upright position so the ends of the specimens touch the bottom of the container. The 6-in. sample

¹ This test method is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.33 on Insulation Finishes and Moisture.

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² *Annual Book of ASTM Standards*, Vol 04.06.

³ An alternative attachment method would be to attach the specimens to the wire mesh using a hot melt adhesive (at approximately $\frac{1}{2}$ in. below and above the water line, and approximately $\frac{1}{2}$ in. from the top of the specimen).