



## Standard Specification for Glass Fiber Blanket Insulation (Aircraft Type)<sup>1</sup>

This standard is issued under the fixed designation C 800; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope

1.1 This specification covers the composition, size, dimensions, and physical properties of glass fiber blanket thermal and acoustical insulation for use up to 700°F (370°C) in aircraft applications. For specific applications, the maximum temperature shall be agreed upon between the supplier and the purchaser.

1.2 When the installation or use of thermal insulation materials, accessories, and systems may pose safety or health problems, the manufacturer shall provide the user appropriate current information regarding any known problems associated with the recommended use of the company's products, and shall recommend protective measures to be employed in their safe utilization. The user shall establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.

1.3 The following precautionary caveat pertains only to the Test Methods Section 11. *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.*

1.4 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information only.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- C 167 Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations<sup>2</sup>
- C 168 Terminology Relating to Thermal Insulating Materials<sup>2</sup>
- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus<sup>2</sup>
- C 390 Criteria for Sampling and Acceptance of Preformed Insulation Lots<sup>2</sup>

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.23 on Blanket and Loose Fill Insulation.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 04.06.

- C 411 Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation<sup>2</sup>
- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus<sup>2</sup>
- C 522 Test Method for Airflow Resistance of Acoustical Materials<sup>2</sup>
- C 665 Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing<sup>2</sup>
- C 1058 Practice for Temperatures for Evaluating and Reporting Thermal Properties of Thermal Insulation<sup>2</sup>
- D 1682 Test Methods for Breaking Load and Elongation of Textile Fabrics<sup>3</sup>
- E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method<sup>4</sup>

### 3. Terminology

3.1 *Definitions*—Terminology C 168 shall be considered as applying to the terms used in this specification. Definitions in Test Method C 522 shall be considered as applying to the acoustical terms used in this standard.

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

3.2.1 *Wetting*—A condition where the water has penetrated into the insulation and fills the spaces between the fibers.

### 4. Classification

4.1 Glass fiber blanket insulation covered by this specification shall be classified into types based on temperature limits, grades based on acoustical properties expressed as flow resistance in rayls, and classes based on nominal density and thickness as shown in Table 1.

4.2 The insulation may be either water repellent or non-water repellent.

### 5. Ordering Information

5.1 The type, grade, and class suited to the conditions of intended service shall be specified by the purchaser after consultation with the supplier.

5.2 It shall also be specified whether the insulation is to be water repellent or non-water repellent.

<sup>3</sup> Annual Book of ASTM Standards, Vol 07.01.

<sup>4</sup> Annual Book of ASTM Standards, Vol 14.02.

**TABLE 1 Types, Grades, and Classes**

Class	Nominal Thickness		Nominal Density	
	in.	(mm)	lb/ft <sup>3</sup>	(kg/m <sup>3</sup> )
Type I (For use in 450°F (232°C))				
Grade A				
1	½	(12.7)	0.40	(6.4)
2	1	(25.4)	0.40	(6.4)
3	½	(12.7)	0.60	(9.6)
4	1	(25.4)	0.60	(9.6)
5	1½	(38.1)	0.60	(9.6)
6	2	(50.8)	0.60	(9.6)
7	½	(12.7)	1.00	(16.0)
8	1	(25.4)	1.00	(16.0)
9	¾	(9.5)	1.50	(24.0)
10	½	(12.7)	3.00	(48.0)
Grade B				
1	½	(12.7)	0.50	(8.0)
2	1	(25.4)	0.50	(8.0)
3	2	(50.8)	0.50	(8.0)
4	½	(12.7)	0.60	(9.6)
5	½	(12.7)	1.00	(16.0)
6	1	(25.4)	1.00	(16.0)
7	2	(50.8)	1.00	(16.0)
Type II (For use to 700°F (370°C))				
1	½	(12.7)	0.60	(9.6)
2	1	(25.4)	0.60	(9.6)
3	1	(25.4)	1.00	(16.0)
4	½	(12.7)	3.00	(48.0)

## 6. Materials and Manufacture

### 6.1 Composition:

6.1.1 Fiber shall be glass processed from a molten state into fibrous form.

6.1.2 Binder shall be of a type and quantity to provide the properties and performance listed in this specification. Additives may be included to provide a degree of water repellency.

6.1.3 Facings are not normally provided on this type of blanket insulation.

6.1.4 The basic product may also be obtained in uncured form for molding into special shapes other than blanket. However, not all requirements in this specification may apply. The purchaser should consult the supplier and agree on the portions of this specification and conditions that are applicable.

6.2 For sizes and densities other than those listed, the purchaser shall consult the material supplier.

## 7. Physical Requirements

7.1 The insulation shall conform to the requirements described in 7.2-7.11 and Tables 1-5.

7.2 *Density*—The insulation shall conform to the requirements shown in Table 1. A tolerance of  $\pm 15\%$  of the nominal density shall be permitted, when tested in accordance with 11.6.

7.3 *Handleability*—Each piece of insulation shall be sufficiently coherent to permit transportation and installation as a unit.

7.4 *Burning Characteristics*—The insulation shall conform to the requirements in Table 2, when tested in accordance with 11.1.

7.5 *Wicking (water-repellent insulation only)*—The insulation shall conform to the requirements in Table 2, when tested in accordance with 11.2.

**TABLE 2 Other Properties**

Property	Requirement, max
<i>Burning Characteristics:</i>	
Flame extinguishing time, s	15
Burn length, in. (mm)	8 (203.2)
Drip extinguishing time, s	5
<i>Wicking:</i>	
Before Aging and Before Leaching, in. (mm)	¼ (6.4)
After Aging, in. (mm)	¼(6.4)
After Leaching, in. (mm)	¼(6.4)
<i>Water Repellency, lb. (kg):<sup>A</sup></i>	0.044 (0.020)

<sup>A</sup> Average of three test specimens.

7.5.1 Precipitates shall not form in the water bearing the wicking specimens.

7.5.2 Wetting of the submerged portion of the wicking specimens is permissible.

7.5.3 Beads of water are not to be construed as a condition of wetting. The formation of beads of water on the insulation surface indicates water repellency.

7.5.4 Surface wetting is not considered as wicking, but cannot be more than 1 in. (25.4 mm) when measured from the waterline.

7.6 *Odor Emission*—A detectable odor of objectionable nature recorded by more than two of the five panel members shall constitute failure of the material, when tested in accordance with 11.3.

7.7 *Service Temperature*—The insulation shall conform to the requirements in Table 1, when tested in accordance with 11.7.

7.7.1 Insulation shall be serviceable up to the maximum temperature limitations as long as limited mechanical properties are required. At maximum or near-maximum service temperatures, some deterioration of the binder may be possible over extended periods of time.

7.8 *Apparent Thermal Conductivity*—Values shall not exceed those in Table 3, when tested in accordance with 11.9.

7.9 *Specific Transverse Airflow Resistance*—The insulation shall conform to the requirements in Table 4, when tested in accordance with 11.4.

7.10 *Breaking Strength*—The insulation shall conform to the requirements in Table 4, when tested in accordance with 11.5.

7.11 *Water Repellency (water-repellent insulation only)*—The insulation shall conform to the requirements of Table 4, when tested in accordance with 11.8.

## 8. Dimensions and Permissible Variations

8.1 *Length and Width*—The average measured length and width shall not differ from the manufacturer's standard dimensions by more than the following:

Length—0.5 ft (0.152 m);

(Not limited—An excess is permitted)

Width  $\pm 0.5$  in. (13 mm)

8.2 *Thickness*—Insulation shall recover to within the following values of the nominal thickness:

Less than 1-in. (25.1-mm) thick  $\pm 20\%$

1 in. (25.4 mm) or greater in thickness  $\pm 0.25$  in. (6.4 mm)

8.3 *Dimensions shall be tested in accordance with 11.6.*

**TABLE 3 Apparent Thermal Conductivity, max, Btu in./(h-ft<sup>2</sup>-°F) (W/(m-K))**

Grade A					
Mean Temperature, °F (°C)	Classes 1 and 2	Classes 3, 4, 5, and 6	Classes 7 and 8	Class 9	Class 10
25 (-3.9)	0.26 (0.039)	0.24 (0.035)	0.23 (0.033)	0.22 (0.032)	0.22 (0.032)
50 (10.0)	0.29 (0.041)	0.26 (0.038)	0.24 (0.035)	0.23 (0.033)	0.23 (0.033)
75 (23.9)	0.31 (0.044)	0.28 (0.040)	0.25 (0.036)	0.24 (0.035)	0.24 (0.035)
100 (37.8)	0.33 (0.047)	0.30 (0.043)	0.26 (0.039)	0.25 (0.036)	0.25 (0.036)
200 (93.3)	0.45 (0.065)	0.40 (0.057)	0.34 (0.049)	0.32 (0.046)	0.30 (0.043)
300 (148.9)	0.61 (0.087)	0.52 (0.075)	0.43 (0.062)	0.40 (0.057)	0.35 (0.051)
400 (204.4) <sup>A</sup>	0.83 (0.119)	0.69 (0.100)	0.55 (0.079)	0.50 (0.072)	0.42 (0.061)
500 (260.0) <sup>A</sup>	1.12 (0.162)	0.91 (0.132)	0.70 (0.101)	0.62 (0.089)	0.51 (0.073)

Grade B			
Mean Temperature, °F (°C)	Classes 1, 2, and 3	Class 4	Classes 5, 6, and 7
25 (-3.9)	0.30 (0.043)	0.29 (0.041)	0.25 (0.036)
50 (10.0)	0.33 (0.047)	0.31 (0.044)	0.28 (0.040)
75 (23.9)	0.36 (0.053)	0.34 (0.050)	0.30 (0.043)
100 (37.8)	0.41 (0.058)	0.37 (0.054)	0.32 (0.046)
200 (93.3)	0.62 (0.089)	0.55 (0.079)	0.43 (0.062)
300 (148.9)	0.94 (0.135)	0.81 (0.118)	0.59 (0.086)
400 (204.4) <sup>A</sup>	1.43 (0.206)	1.19 (0.172)	0.79 (0.114)

<sup>A</sup> These mean temperatures apply to Type II insulation only.

**TABLE 4 Transverse Airflow Resistance and Breaking Strength**

	Airflow Resistance, min Rayls, (N/m <sup>2</sup> )/(m/s)	Breaking Strength, min, lbf/in. (N/m)	
		Length Direction	Width Direction
<i>Type I, Grade A, Class:</i>			
1	300	0.3 (52.5)	0.1 (17.5)
2	600	0.8 (140.1)	0.3 (52.5)
3	560	0.5 (87.6)	0.4 (70.1)
4	1120	1.0 (175.1)	0.8 (140.1)
5	1670	1.2 (210.1)	1.0 (175.1)
6	2230	1.5 (262.7)	1.3 (227.6)
7	1220	0.6 (105.1)	0.5 (87.6)
8	2440	1.2 (210.1)	0.9 (157.6)
9	1700	1.0 (175.1)	1.0 (175.1)
10	6550	2.0 (350.2)	2.0 (350.2)
<i>Type I, Grade B, Class:</i>			
1	50	0.5 (87.6)	0.5 (87.6)
2	100	1.0 (175.1)	1.0 (175.1)
3	200	1.3 (227.7)	1.3 (227.7)
4	70	0.5 (87.6)	0.5 (87.6)
5	140	1.0 (175.1)	1.0 (175.1)
6	290	2.0 (350.2)	2.0 (350.2)
7	580	2.5 (437.8)	2.5 (437.8)
<i>Type II, Class:</i>			
1	600	0.5 (87.6)	0.3 (52.5)
2	1200	1.0 (175.1)	0.5 (87.6)
3	2620	1.2 (210.2)	0.6 (105.1)
4	7040	2.0 (350.2)	1.0 (175.1)

**TABLE 5 Standard Sizes**

Class	Length, ft (m)	Width, in. (mm)
Type I, Grade A		
1	100 (30.5)	36, 72 (914, 1829)
2	100 (30.5)	36, 72 (914, 1829)
3	100 (30.5)	36, 72 (914, 1829)
4	100 (30.5)	36, 72 (914, 1829)
5	50 (15.2)	36, 72 (914, 1829)
6	50 (15.2)	36, 72 (914, 1829)
7	100 (30.5)	36, 72 (914, 1829)
8	100 (30.5)	36, 72 (914, 1829)
9	100 (30.5)	36, 72 (914, 1829)
10	100 (30.5)	36, 72 (914, 1829)
Type I, Grade B		
1	100, 200 (30.5, 61.0)	36, 54, 72 (914, 1372, 1829)
2	100 (30.5)	36, 54, 72 (914, 1372, 1829)
3	100 (30.5)	36, 54, 72 (914, 1372, 1829)
4	100, 200 (30.5, 61.0)	36, 54, 72 (914, 1372, 1829)
5	100 (30.5)	36, 54, 72 (914, 1372, 1829)
6	100 (30.5)	36, 54, 72 (914, 1372, 1829)
7	100 (30.5)	36, 54, 72 (914, 1372, 1829)
Type II		
1	100 (30.5)	36, 72 (914, 1829)
2	100 (30.5)	36, 72 (914, 1829)
3	100 (30.5)	36, 72 (914, 1829)
4	100 (30.5)	36, 72 (914, 1829)

8.4 *Standard Sizes*—See Table 5.

## 9. Workmanship, Finish, and Appearance

9.1 The insulation units shall indicate good workmanship in fabrication and shall not have visible defects that adversely affect their service qualities.

## 10. Sampling

10.1 The insulation shall be sampled in accordance with Criteria C 390. Specific provision for sampling shall be as agreed upon between the purchaser and the supplier as part of the purchase contract.

## 11. Test Methods

11.1 *Burning Characteristics:*

11.1.1 *Scope and Significance and Use*—This test method covers the determination of the burning characteristics of insulation for aircraft applications using a vertical burn test apparatus.

11.1.2 *Apparatus:*

11.1.2.1 *Metal Specimen Holder*, U-Shaped, with inside dimensions 2 in. by 14 in. (50.8 mm by 355.6 mm).

11.1.2.2 *Bunsen/Tirrill Burner*, with inside diameter  $\frac{3}{8}$  in. (9.5 mm).

11.1.2.3 *Temperature/Humidity Control Cabinet.*

11.1.2.4 *Steel Rule*, Graduated in in. (mm).

11.1.2.5 *Stop Watch.*

11.1.3 *Test Specimens:*

11.1.3.1 Test materials either as a section cut from a

fabricated part as installed in the aircraft or as a specimen simulating a cut section, such as a specimen cut from a flat sheet of the material or a model of the fabricated part. The specimen may be cut from any location in a fabricated part.

11.1.3.2 The specimen size shall be 4 in. by 12 in. (101.6 mm by 304.8 mm). Thickness shall be no thicker than the minimum thickness to be qualified for use.

11.1.3.3 Three specimens shall be tested.

11.1.4 *Conditioning*—Condition specimens at  $70 \pm 5^\circ\text{F}$  ( $21 \pm 3^\circ\text{C}$ ) and at  $50 \pm 5\%$  relative humidity until moisture equilibrium is reached. Remove only one specimen at a time from the conditional environment immediately before subjecting it to the flame.

11.1.5 *Procedure*:

11.1.5.1 Conduct the test in a draft-free cabinet.

11.1.5.2 Mount the specimen in a metal frame, so that in the vertical tests the two long edges are held securely. The exposed area of the specimen shall be at least 2-in. (50.8 mm) wide and 12-in. (304.8 mm) long, and the edge to which the burner frame is applied shall not consist of the finished or protected edge of the specimen, but shall be representative of the actual cross section of the material or part installed on the aircraft.

11.1.5.3 Each specimen shall be supported vertically.

11.1.5.4 Expose the specimen to a burner adjusted to give a flame 1.5 in. (38 mm) in height with inner cone height of 0.75 in. (19 mm). The minimum flame temperature measured by a calibrated thermocouple pyrometer in the center of the flame shall be  $1550^\circ\text{F}$  ( $845^\circ\text{C}$ ).

11.1.5.5 The lower edge of the specimen must be at least 0.75 in. (19 mm) above the top of the burner.

11.1.5.6 The flame shall be applied to the centerline of the lower edge of the specimen for 12 s and then removed.

11.1.5.7 Record flame time, burn length (to nearest 0.1 in. (2.54 mm)), and drip time. Burn length is the distance from the original edge to the farthest evidence of damage to the test specimen due to flame impingement, including areas of partial or complete consumption, charring, or embrittlement; but not including areas sooted, stained, warped, or discolored, nor areas where material has shrunk away from the heat source.

11.1.5.8 Test a minimum of three specimens and average the results.

11.1.6 *Precision and Bias*—The precision and bias of this test procedure are being determined.

11.2 *Wicking*:

11.2.1 *Scope and Significance and Use*—This test method covers a laboratory procedure for evaluating the tendency of glass fiber blanket insulation to wick water.

11.2.2 *Test Specimens*—Cut six 1 by 6-in. (25.4 by 152.4-mm) specimens from the insulation material with the 6-in. length in the axis parallel to the length of the roll. Cut six similar specimens with the 6-in. length parallel to the width of the roll.

11.2.3 *Procedure*:

11.2.3.1 Fasten loosely, with fine wire, six specimens (three cut with the axis parallel to the length of the roll and three cut with the axis perpendicular to the length of the roll) to a grease-free 0.025 in. to 0.035-in. (0.64 mm to 0.89-mm), 4 by 4 mesh stainless steel wire screen and position this assembly in

an upright position so that the ends of the specimens touch the bottom of the container. The specimens must not touch each other on the sides of the container. Pour distilled water into the container to a height of 1 in. (25.4 mm). The water shall be at room temperature.

11.2.3.2 Position the remaining six specimens similarly in another container. Pour distilled water into the container to a height of 1 in. (25.4 mm). Maintain the temperature of the water at  $120 \pm 5^\circ\text{F}$  ( $48.9^\circ\text{C}$ ). Note degree of wicking every 24 h.

11.2.3.3 *Wicking After Oven Aging*—Insulation 8 in. by 14 in. (203 mm by 356 mm) shall be aged in a forced-air circulating oven, at  $160 \pm 5^\circ\text{F}$  ( $71 \pm 3^\circ\text{C}$ ) for two weeks. The aged insulation shall be tested in accordance with 11.2.3.

11.2.3.4 *Wicking After Leaching*—Insulation 8 in. by 14-in. (203 mm by 356-mm) shall be submerged in an immersion tank containing water at a temperature of 80 to  $85^\circ\text{F}$  (27 to  $29^\circ\text{C}$ ), and allowed to remain immersed for a period of 24 h. (Immersion tank shall be of such a shape and size that the specimen can be submerged therein with all surfaces of the specimen having full access to the water, and a ratio of the specimen to water shall be not less than 1 to 100 by weight. A continuous flow of water shall be supplied to the bottom of the container at a temperature of 80 to  $85^\circ\text{F}$  (27 to  $29^\circ\text{C}$ ), and at a rate of about five changes per hour. At the end of the leaching period, the specimen shall be removed from the water and air dried.

11.2.4 *Precision and Bias*—The precision and bias of this test procedure are being determined.

11.3 *Odor Emission*—Determine odor emission in accordance with the odor emission test procedure of Specification C 665.

11.4 *Specific Transverse Airflow Resistance*—Determine the specific transverse airflow resistance,  $r_t$  (of a nonisotropic homogeneous material), in SI rayls ( $\text{newton}/\text{m}^2/(\text{m}/\text{s})$ ), in accordance with Test Method C 522. The term rayl is commonly used only in the metric system; therefore, no inch-pound customary units are given.

NOTE 1—Many literature references use cgs rayls (1 cgs rayl = 10 SI rayls).

11.5 *Breaking Strength*—Determine the breaking strength in accordance with Test Methods D 1682, except as follows:

11.5.1 The face of each jaw shall measure  $1.0 \pm 0.1$  in. by  $3.0 \pm 0.1$  in. ( $25.4 \pm 2.54$  mm by  $76.2 \pm 2.54$  mm). Each sample shall measure  $4.0 \pm 0.2$  in. by  $6.0 \pm 0.2$  in. ( $101.6 \pm 5.08$  mm by  $152.4 \pm 5.08$  mm) so that material overlaps the jaw and three superimposed pieces are broken at the same time. The distance between the jaws (known as the gage length) shall be  $3.0 \pm 0.2$  in. ( $76.2 \pm 5.08$  mm) at the start of the test.

11.5.2 Report the average of five determinations of three specimens each as the breaking strength.

11.5.3 Calculate the breaking strength as follows:

$$\text{Breaking Strength} = \frac{\text{Breaking Force}}{\text{Jaw Length} \times 3} \quad (1)$$

11.6 *Thickness and Density*—Determine thickness and density in accordance with Test Methods C 167.

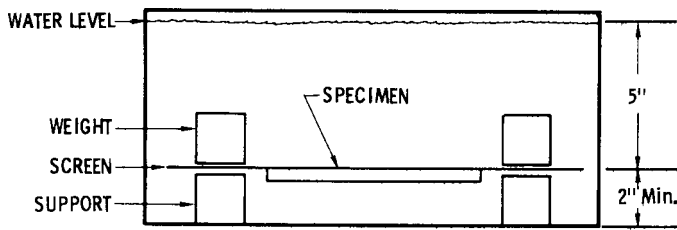


FIG. 1 Water Repellency Test Apparatus

$x$	13.0 g
$s_x$	2.1
$s_f$	4.1
$s_R$	4.1
$r$	11.5
$R$	11.5

11.7 *Service Temperature*—The maximum service temperature of the insulation shall be evaluated in accordance with Test Method C 411.

11.8 *Water Repellency:*

11.8.1 *Scope and Significance and Use*—This test method covers a laboratory procedure for evaluating the water absorption potential of blanket insulation for aircraft, thereby providing a measure of weight increase.

11.8.2 *Test Specimens*—Cut three 10 in. by 10-in. (254 mm by 254-mm) specimens equally spaced across the width of the blanket.

11.8.3 *Procedure*—Weigh each specimen (to the nearest 0.1 g). Float the specimen on the surface of water at  $70 \pm 4^\circ\text{F}$ . Lay 0.25 in. (6.4 mm) mesh rigid screen on top of specimens and slowly submerge to a level 5 in. (127 mm) below the surface. Fix the screen in position as shown in Fig. 1. After  $15 \pm 1$  min, release screen and raise the specimens slowly until the specimens float. Remove the screen. Grip each specimen on one corner with a spring clamp and hang in vertical position for  $60 \pm 5$  s. Reweigh each specimen.

11.8.4 *Calculation*—Determine water retained by subtracting the original specimen weight from the final specimen weight. Calculate water repellency by averaging the results of the three specimens.

11.8.5 *Precision and Bias:*

11.8.5.1 *Inter-laboratory Test Program*—An inter-laboratory comparison was run in which randomly selected test specimens of one material were tested for water repellency. Four laboratories participated with each laboratory testing three specimens. Practice E 691 was followed for the design and analysis of the data. All of the test specimens were provided by a single laboratory. The details are given in ASTM Research Report No. C16-1017.<sup>5</sup>

11.8.5.2 *Test Result*—The following information or precision, in units of measurement noted, is for the comparison of one material and based on an average of three tests.

11.8.5.3 *Precision*—Water repellency inter-laboratory comparison statistical results using Practice E 691. (Maximum water repellency is 20 g.):

11.8.5.4 *Bias*—There is no accepted reference material suitable for determining the bias for the procedures in Specification C 800 for measuring water repellency. Bias has not been determined.

11.9 *Apparent Thermal Conductivity:*

11.9.1 Determine in accordance with Test Methods C 177 or C 518.

11.9.2 Temperatures of test shall be in accordance with Practice C 1058.

12. **Qualification Requirements**

12.1 The following requirements are generally employed for the purpose of initial material or product qualification:

- 12.1.1 Handleability,
- 12.1.2 Burning Characteristics,
- 12.1.3 Wicking,
- 12.1.4 Odor Emission,
- 12.1.5 Maximum Service Temperature,
- 12.1.6 Apparent Thermal Conductivity,
- 12.1.7 Specific Transverse Airflow Resistance, and
- 12.1.8 Breaking Strength.

13. **Inspection**

13.1 The following requirements are generally employed for purposes of acceptance sampling of lots or shipments of qualified insulation:

- 13.1.1 Density,
- 13.1.2 Water Repellency (water-repellent material only),
- 13.1.3 Dimensions, and
- 13.1.4 Workmanship.

14. **Rejection and Rehearing**

14.1 Material that fails to conform to the requirements of the specification may be rejected. Rejection should be reported to the manufacturer or supplier promptly and in writing. In case of dissatisfaction with the results of the test, the manufacturer or supplier may make claim for a rehearing.

14.2 In case of rejection, the manufacturer or supplier shall have the right to reinspect the rejected shipment and resubmit the lot after removal of that portion of the shipment not conforming to the specified requirements.

15. **Packaging and Package Marking**

15.1 *Packaging*—Unless otherwise agreed or specified between the purchaser and the manufacturer or supplier, the insulation shall be packaged in the manufacturer’s standard commercial containers.

15.2 *Marking*—Unless otherwise specified, containers shall be marked with the supplier’s name and designation, type, class, size and thickness, and quantity of the material contained.

<sup>5</sup> Available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

## 16. Keywords

16.1 aircraft; aircraft insulation; airflow resistance; transverse; glass fiber; glass fiber insulation; water repellency; wicking

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