

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3676

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Revised

INSULATION, SOUND AND THERMAL, Resin-bonded Glass Fiber, Medium Filament

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. FORM: Felted pads, flat or in rolls, or as ordered.
3. APPLICATION: Primarily for insulation of aircraft cabins against heat up to 500 F and against sound.
4. MATERIAL AND FABRICATION: The product shall be composed of medium filament glass fibers matted into sheets, and bonded with a thermosetting resin.
5. TECHNICAL REQUIREMENTS:
 - 5.1 General:
 - 5.1.1 Corrosion: The product shall not have a corrosive or other deleterious effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.
 - 5.1.2 Acoustical Properties: When specified, the product, shall have acoustical properties acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
 - 5.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed methods insofar as practicable.

	<u>Property</u>	<u>Value</u>	<u>Test Method</u>
5.2.1	<u>Density</u> : lb per cu ft	0.50 ± 0.09	ASTM C167-44 At specified thickness
5.2.2	<u>Thermal Conductivity</u> : Btu/hr/sq ft/deg Fahr/in., max	0.26	ASTM C177-45 Mean Temp. 70 F
5.2.3	<u>Moisture Absorption</u> : per cent, max	1	Note 1
5.2.4	<u>Vibration Resistance</u> : Weight loss, per cent, max Packing Disintegration	0.5 None None	Note 2
5.2.5	<u>Fire Resistance</u> :	Pass	AMS 3851
5.2.6	<u>Filament Diameter</u> : average, inch	0.00009 + 0.00004 -	As agreed upon by purchaser and vendor

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Note 1: A 6-in. square specimen conditioned in accordance with ASTM D759-48, shall be placed in a suitable weighing bottle and the total weight carefully noted. This weight less the weight of the bottle shall be considered the conditioned weight of the specimen. The specimen shall then be removed from the bottle, brought to a uniform temperature of 120 F \pm 2, subjected to a relative humidity of 95% \pm 3 at a temperature of 120 F \pm 2 for 96 hours. The specimen shall then be replaced in the weighing bottle and the total weight recorded. The total weight less the weight of the bottle shall be considered the wet weight of the specimen. The percentage of moisture absorption shall be calculated by means of the following formula:

$$\text{Per cent increase} = \frac{\text{Wet weight} - \text{Conditioned weight} \times 100}{\text{Conditioned weight}}$$

Note 2: A specimen at least 20 inches long and 12 inches wide shall be mounted with the long sides vertically clamped in such a fashion that the top and bottom shall be open and the entire panel shall be free to vibrate horizontally. The specimen shall be so cut that any stitching which does not cross upon itself shall be vertical. In cases where cross stitching is used, the specimen shall be cut so that the longest dimension of the stitch pattern is vertical. The specimen shall be vibrated horizontally for 12 hours through a double amplitude of at least 0.040 in. at a frequency of 1750 \pm 50 cycles per minute. Before the test is begun, the specimen shall be carefully weighed and after completion of the vibration test, the specimen shall be weighed again, any loss of weight being noted.

6. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from defects detrimental to fabrication; appearance or performance of parts.

7. SIZES AND TOLERANCES: Unless otherwise specified, the following shall apply:

7.1 Length: Minimum 144 in.

7.2 Width: Unless otherwise specified, 54 in. \pm $\frac{1}{2}$ in., - 0 in.

7.3 Thickness:

Nominal (Specified) Thickness, inch	Tolerance, Inch Plus or Minus
0.500	0.062
1.000	0.125
1.500	0.188
2.000	0.250

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a notarized report stating that the product meets all the requirements of this specification. This report shall include the purchase order number, material specification number, thickness, size, quantity, and manufacturer's identification.