

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3676A

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

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter 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.

Property	Value	Test Method
5.2.1 <u>Density</u> : lb per cu ft	0.50 $\pm$ 0.09	ASTM C167-50 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> : Inch, average	0.00009 $\pm$ 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 $120\text{ F} + 2$, and subjected to a relative humidity of $95\% \pm 3$ at a temperature of $120\text{ F} + 2$ 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 in. long and 12 in. 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 hr through a double amplitude of at least 0.040 in. at a frequency of 1750 ± 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:

7.1.1 Pads: Not less than 14 1/4 inches.

7.1.2 Rolls: Not less than 50 feet.

7.2 Width: Unless otherwise specified, 54 in. ± 0.5 in., - 0.

7.3 Thickness:

<u>Nominal Thickness,</u> <u>inch</u>	<u>Tolerance, Inch</u> <u>plus and minus</u>
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 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.
- 8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.
9. IDENTIFICATION: Each roll shall be identified with a suitable tag bearing the data required by 10.3, so attached to the roll that the tag will be visible until the entire roll is used.

10. PACKAGING:

- 10.1 Packaging shall be accomplished in such a manner as to ensure that the material, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weathering or any normal hazard.
- 10.2 Unless otherwise specified, the material shall be furnished rolled on a tube having ID not less than 2 in. and length 3 in. longer than the width of the material furnished. Rolls may be composed of pieces, but no piece shall be less than 14 1/4 in. long.
- 10.3 Marking: Each package shall be permanently and legibly marked to give the following information:

INSULATION, SOUND AND THERMAL
RESIN-BONDED GLASS FIBER, MEDIUM FILAMENT
AMS 3676A
WIDTH _____ TOTAL LENGTH _____
PURCHASE ORDER NUMBER _____
MANUFACTURER'S IDENTIFICATION _____

11. APPROVAL:

- 11.1 To assure adequate performance characteristics, material shall be approved by purchaser before material for production use is supplied, unless such approval be waived. Results of tests on production material shall be essentially equivalent to those on the approved sample.