Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3664A
Superseding AMS 3664

Issued 2-15-53
Revised 4-15-78

FABRIC, GLASS, VINYL COATED

1. SCOPE:

1.1 Form: This specification covers four types of glass cloth coated on both sides with a flexible, vinyl-copolymer resin, the type of glass cloth varying with nominal thickness of the product.

1.2 Application: Primarily for use as a nonporous, abrasion and flame resistant, trim cloth or as a covering for thermal and acoustic insulation blankets for use up to 80°C (180°F).

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifiations:

AMS 2350 - Standards and Test Methods
AMS 2810 - Identification and Packaging, Elastomeric Products

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D471 - Rubber Property - Effect of Liquids
ASTM D573 - Rubber Deterioration in An Air Oven
ASTM D751 - Testing Coated Fabrics
ASTM D3389 - Coated Fabrics - Abrasion Resistance (Rotary Platform Double-Head Abraser)

2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120, except as specified in 2.3.3.

2.3.1 Federal Specifications:

TT-L-32 - Lacquer, Cellulose Nitrate, Gloss, for Aircraft Use

2.3.2 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

2.3.3 Federal Aviation Administration Regulations: Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

FAR Part 25 - Airworthiness Standards: Transport Category Airplanes

Printed in U.S.A.

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be glass fabric coated with a flexible, vinyl-copolymer resin of uniform thickness on both faces to produce products conforming to the requirements of Table I and 3.2.

TABLE I

Glass Cloth Type	Nominal Thickness		Coated Weight	
	Inch	(Millimetre)	Oz per sq yd	g/m^2
108	0.0045	0.114	4.5 ± 0.5	156 ± 17
119	0.005	0.13	5.0 ± 0.5	170 ± 17
118	0.007	0.18	8.0 ± 0.5	271 ± 17
126	0.011	0.28	11.0 ± 1.0	430 ± 34

3.1.1 Color: Shall be at the option of the vendor except that aluminum color is not permitted, unless a specific color is ordered.

3.1.2 Finish: Shall be nonglossy.

3.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with specified test methods, insofar as practicable.

3.2.1 As Received:

3.2.1.1 Breaking Strength: Shall be as specified in Table II, determined in accordance with ASTM D751, Grab Method.

TABLE II

Nominal Thickness Inch	Breaking Strength, min lb per in. width	
	Warp	Fill
0.0045	70	40
0.005	125	100
0.007	190	140
0.011	225	195

TABLE II (SI)

Nominal Thickness Millimetre	Breaking Strength, min kN/m width	
	Warp	Fill
0.114	12.3	7.0
0.13	21.9	17.5
0.18	33.3	24.5
0.28	39.4	34.1

3.2.1.2 Flammability: The time to cease burning shall be not more than 15 sec, determined in accordance with FAR 25.853(a) and Appendix F.

3.2.1.3 Flexibility: The product shall withstand, without cracking or peeling of the coating from the fabric, bending rapidly at 20° - 30° C (68° - 86° F) flat on itself.

3.2.1.4 Water Permeability: The product shall leak not more than 10 mL of water in 100 min. under an ø 8-in. (203-mm) head of water when clamped over a 4-1/2-in. (114-mm) diameter hole in a reservoir.

3.2.1.5 Abrasion Resistance: The product neither shall decrease in thickness by more than 0.0005 in. (0.013 mm) nor shall the glass fabric be exposed in 1000 cycles, determined in accordance with ø 4.5.1; if aluminum-colored coatings are ordered, the loss in thickness shall be as agreed upon by purchaser and vendor.

3.2.1.6 Solvent Resistance: The product shall withstand, without developing surface tackiness, decomposition, delamination, or excessive curling or cracking of the coating, immersion at 20° - 30° C (68° - 86° F) in the fluids and for the times shown in Table III; separate specimens shall be immersed in each fluid.

TABLE III

Fluid	Immersion Time
ASTM Fuel B (ASTM D471)	10 min. ± 0.5
ASTM Oil No. 3 (ASTM D471)	15 min. ± 0.5
Tap Water	8 hr ± 0.25

3.2.2 Heat Resistance: The product, aged in accordance with ASTM D573 for 24 hr ± 0.25 at 100° C ± 1 (212° F ± 2), ø shall show neither undue surface tackiness nor loss of adhesion of the coating to the fabric and shall pass the flexibility (3.2.1.3) and water permeability (3.2.1.4) tests.

3.2.3 Low-Temperature Resistance: The product, maintained at -55° C ± 1 (-67° F ± 2) for 5 hr ± 0.25, shall withstand, without cracking, peeling or delamination, bending rapidly at -55° C ± 1 (-67° F ± 2) through an angle of 180 deg around a 1/4-in. (6.4-mm) diameter mandrel.

3.2.4 Cleanability: The product shall not be adversely affected when cleaned by rubbing lightly with soap solution or Stoddard's solvent to remove exhaust soot, oil, and grease.

3.2.5 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.2.6 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service.

3.2.7 Plasticizer Migration: When in contact with TT-L-32 lacquer, the product shall not cause tackiness of the finish.

3.3 Quality: The product shall be uniform in quality and condition, clean, free from blisters, tears, cracks, and uncoated areas, as free from foreign materials as commercially practicable, and free ø from other internal and external imperfections detrimental to fabrication, appearance, or performance of parts.

3.4 Tolerances: Unless otherwise specified, tolerances shall be as specified in Table IV.

TABLE IV

Nominal Thickness Inch	Tolerance, Inch plus and minus
0.0045	0.0010
0.005	0.001
0.007	0.001
0.011	0.002

TABLE IV (SI)

Nominal Thickness Millimetre	Tolerance, Millimetre plus and minus
0.114	0.025
0.13	0.03
0.18	0.03
0.28	0.05

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to the following requirements are classified as acceptance tests and shall be performed on each lot of product:

Requirement	Paragraph
Material	3.1
Breaking Strength	3.2.1.1
Flammability	3.2.1.2
Heat Resistance	3.2.2
Quality	3.3

4.2.2 Qualification Tests: Tests to determine conformance to all technical requirements of this specification are classified as qualification tests and may be the basis for approval of the product (See 4.4.1).

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, qualification test material shall be submitted to the cognizant qualification agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Sufficient product shall be taken at random from each lot to perform all required tests. The number of specimens for each test shall be as specified in the applicable test procedure or, if not specified therein, not less than three.