



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3802C
Superseding AMS 3802B

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CLOTH, AIRPLANE, COTTON, MERCERIZED
50 lb Breaking Strength

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for covering aircraft surfaces such as wings, fuselage, ailerons, and elevators.
3. TECHNICAL REQUIREMENTS:

3.1 General:

3.1.1 Mercerization: The cloth shall be piece mercerized or the yarn may be mercerized under tension.

3.1.2 Yarn: The cloth shall be woven from 1- or 2-ply, combed cotton yarn.

3.1.3 Weave: The weave shall be plain (one up and one down).

3.1.4 Finishing: The cloth shall be uniformly finished in accordance with the best practice for high-grade airplane cloth. Finishing shall consist of washing, framing, and calendering. The calendering shall be sufficient to lay any nap present and shall provide a smooth, even surface. Nap may be removed by singeing.

3.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable.

∅ 3.2.1	Weight, oz per sq yd, max	3.5	ASTM D1910
3.2.2	Thread Count, ends per in.		ASTM D1910
∅	Warp and Fill, each, max	110	
3.2.3	Breaking Strength, each direction,		ASTM D1682,
∅	lb per in. width, min	50	Ravelled strip method
3.2.4	Elongation at 44 lb load, %, max		ASTM D1682,
∅	Warp	13	Ravelled strip
	Fill	11	method (See Note 1)
3.2.5	Sizing, Finishing, and Other		ASTM D629,
	Non-Fibrous Materials, %, max	2.5	Equation 3 (See Note 2)

Note 1. Elongation at 44 lb shall be measured from a base line on the chart to a point at which the curve intersects 44 lb load ordinate with the base line passing through the point where the curve leaves the zero ordinate.

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Note 2. A desizing operation may be performed, if necessary, to reduce the sizing content to the maximum specified.

4. QUALITY: The cotton fibers shall be evenly spun into yarns of proper and uniform yarn count, twist, and diameter to produce the texture and weight required. The yarn shall be reasonably free from nap breaks, broken ends, uneven threads, and knots. Yarns shall be closely woven into fabric uniform in body and appearance, and which shall be reasonably free from striations due to variable weaving operations.

5. TOLERANCES: Unless otherwise specified, the following tolerances apply:

5.1 Width:

Nominal Width Inches	Tolerance, Inches plus and minus
36	1/2
42	5/8
60	1
69	1
90	1-1/2

5.2 Length of Cut: The length of a single cut shall be not less than 40 yd except that 10% of the total yardage of one width under any contract or order may be in short lengths of from 10 to 25 yards. However, short lengths shall be rolled together and the roll properly labeled to indicate that it is composed of short lengths.

5.3 Length of Roll: The cloth shall be furnished on rolls containing the following lengths:

Nominal Width Inches	Roll Length Yards
36 and 42	500 to 600
60 and 69	250 to 300
90	175 to 200

6. REPORTS:

6.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, vendor's material designation, width, and quantity.

6.2 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 and its revision letter, contractor or other direct supplier of material, supplier's material designation, 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.

7. IDENTIFICATION: The cloth shall incorporate a continuous marking to show the manufacturer's name or trade mark and AMS 3802C. This marking may be stamped along the selvage.

8. PACKAGING:

8.1 Packaging shall be accomplished in such a manner as to ensure that the cloth, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to moisture, weathering, or any normal hazard.