

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 3804A

Issued 1-1-46

Revised 5-1-54

CLOTH, AIRPLANE, COTTON, MERCERIZED
65 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:** Cloth shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed ASTM methods, insofar as practicable.

3.2.1	Weight, oz per sq yd, max	4	ASTM D39-49 ^o
3.2.2	Thread count, ends per in. Warp and Fill, each	80 to 94	ASTM D39-49
3.2.3	Breaking Strength, each direction, lb per in. width, min	65	ASTM D39-49, Raveled Strip Method
3.2.4	Elongation under 57 lb tension, %, max Warp Fill	13 11	ASTM D39-49, Raveled Strip Method (See Note 1)
3.2.5	Tear Strength, lb, min	4	ASTM D39-49, Trapezoid Method
3.2.6	Sizing, Finishing, and other Non-Fibrous Materials, %, max	2.5	ASTM D629-46T, Equation 3 (See Note 2)

Section 7C of the SAE Technical Board rules provides that: "All technical report use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

- Notes. 1. Elongation at 57 lb shall be measured from a base line on the chart to a point at which the curve intersects 57 lb load ordinate with the base line passing through the point where the curve leaves the zero ordinate.
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 on the drawing or purchase order, 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