



# AEROSPACE MATERIAL SPECIFICATION

**Society of Automotive Engineers, Inc.**  
TWO PENNSYLVANIA PLAZA, NEW YORK, N. Y. 1000

## AMS 3806B

Superseding AMS 3806A

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CLOTH, AIRPLANE, COTTON, MERCERIZED  
80 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 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  $\emptyset$  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		ASTM D1910
$\emptyset$	Nominal Width: 36 in.	4.0	
	42 in.	4.0	
	60 in. and over	4.5	
3.2.2	Thread Count, ends per in.		ASTM D1910
$\emptyset$	Warp and Fill, each	80 - 84	
3.2.3	Breaking Strength, each direction,		ASTM D1682,
$\emptyset$	lb per in. width, min	80	Ravelled strip method
3.2.4	Elongation at 70 lb load,	Warp	ASTM D1682,
$\emptyset$	%, max	Fill	Ravelled strip method
	Nominal Width: 36 in.	13	method
	42 in.	13	(See Note 1)
	60 in.	14	
	69 in.	15	
	90 in.	16	
3.2.5	Burst Strength, Mullen, points, min	170	Note 2

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3.2.6 Sizing, Finishing, and Other  
Non-Fibrous Materials, %, max

3.5

ASTM D629,  
Equation 3  
(See Note 3)

Note 1. Elongation at 70 lb shall be measured from a base line on the chart to a point at which the curve intersects 70 lb load ordinate with the base line passing through the point where the curve leaves the zero ordinate.

Note 2. The bursting strength shall be determined with a hydraulic type machine in which the cloth is firmly clamped against a rubber diaphragm, through which the pressure is applied to a circular area of approximately 1 sq inch. The pressure required to burst the cloth is registered on an accurate Bourdon tube-type gage, calibrated in pounds per square inch, the readings of which are designated as points. The bursting strength shall be ascertained by taking the average of not less than 10 tests. Not less than 20 tests shall be made before a delivery of cloth is rejected.

Note 3. A desizing operation may be performed 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, form or part number, width, and quantity.