

AERONAUTICAL MATERIAL SPECIFICATION

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AMS 3802A

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Page 1 of 3

CLOTH; AIRPLANE, COTTON, MERCERIZED
50 lbs. 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: The cloth shall be suitable for covering aircraft surfaces such as wings, fuselage, ailerons, and elevators.
3. MATERIAL: The cloth shall be woven from 1 or 2-ply, combed cotton yarn.
4. QUALITY:
 - (a) 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.
 - (b) The yarn shall be reasonably free from nap breaks, broken ends, uneven threads and knots.
 - (c) 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. Cloth shall be uniformly finished in accordance with the best practice for high-grade airplane cloth.
5. REQUIREMENTS:
 - (a) The cloth shall be piece mercerized, or the yarn may be mercerized under tension.
 - (b) The weave shall be plain (one up and one down).
 - (c) The number of threads shall be not more than 110 per inch in either the warp or the fill.
 - (d) The selvage edges shall be flat woven with no greater tension than that of the body of the cloth.
 - (e) The breaking strength shall be not less than 50 pounds per inch of width in either the warp or fill as determined by the ravelled-strip method.
 - (f) The elongation shall be not greater than 13% in the warp and not greater than 11% in the fill when 44 pounds tension is applied during the ravelled-strip test.
 - (g) The tearing strength shall be not less than 3 pounds in either the warp or fill as determined by the trapezoid method.
 - (h) The weight of the finished cloth shall not exceed 3.5 ounces per square yard.
 - (i) The cloth shall contain not more than 2.5% total sizing, finishing and other non-fibrous materials and should be chemically neutral. A desizing operation may be performed if necessary to reduce the sizing content to the 2.5% maximum value specified.

(j) 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.

6. TESTS: All tests shall be made in accordance with ASTM D39-39 except as follows: The test for total sizing, finishing and other non-fibrous materials shall be made in accordance with ASTM D629-42T, using equation 3 for calculation.
7. TOLERANCES: Unless otherwise specified on the drawing or purchase order, the following tolerances apply:

<u>Width Inches</u>	<u>Tolerance Inches</u>
36	$\pm 1/2$
42	$\pm 5/8$
60	± 1
69	± 1
90	$\pm 1-1/2$

8. LENGTH OF CUT: The length of a single cut shall be not less than 40 yards, 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 and 10% may be from 25 to 40 yards. However, short lengths shall be rolled together and the roll properly labeled to indicate that it is composed of short lengths.
9. LENGTH OF ROLL: The cloth shall be furnished on rolls containing the following lengths:

<u>Width Inches</u>	<u>Roll Length Yards</u>
36 and 42	500 to 600
60 and 69	250 to 300
90	175 to 200

10. REPORTS: Unless otherwise specified, the vendor shall furnish for each shipment three copies of a notarized report stating that the cloth conforms to this specification. This report shall include the purchase order number, material specification number and quantity.
11. IDENTIFICATION: The cloth shall incorporate a continuous marking to show the manufacturer's name or trade mark and AMS 3802. This marking may be stamped along the selvage.
12. PACKAGING: (a) Packaging shall be accomplished in such a manner as to insure that the cloth, during shipment or storage, will be protected against exposure to moisture or weathering, or harmful agents of any kind.