

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 3665

Issued 11-1-46

Revised

Page 1 of 4

FABRIC: COATED NYLON

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** The product is primarily intended for use as a fabric seal for ailerons and other control surfaces.
3. **MATERIAL AND FABRICATION:** Nylon fabric coated on one or both sides with a compounded chloroprene or other suitably compounded polymer or vinyl resin copolymer.
4. **TECHNICAL REQUIREMENTS:** (a) General.
 - (1) Color.- The color furnished shall be optional with vendor unless otherwise specified.
 - (2) Weathering.- When specified, a weathering test shall be conducted as agreed upon between the purchaser and the vendor.
 - (3) Corrosion.- The product shall not have a corrosive or other deleterious effect on other materials when exposed to conditions normally encountered in the operation of aircraft. Discoloration of metals shall not be considered objectionable.(b) Physical Properties.- The material shall conform to the following requirements as received unless otherwise indicated:

	Value	Test Method
Tensile Strength, (Grab Method), lb, min		ASTM D39-39
Warp	90	
Fill	50	
Tear Strength (Tongue Method), (Warp and Fill) lb, min	4	ASTM D39-39
Air Permeability (5min at 2 psi)	No observable leakage	Para. 4(c)(1)
Fatigue Resistance	Pass	Para. 4(c)(4)
Weight, oz per sq yd, max	5.0	ASTM D39-39
Low Temperature Flexibility at -67 F	No cracking or breaking	Para. 4(c)(2)
Resistance to Heat at +160 F	No tackiness, softening or blistering	Para. 4(c)(3)



Documents

Document Sharing Hub

(c) Test Method.-

(1) Air Permeability Test.- Air permeability shall be measured with the apparatus shown in Fig. 1. Subject the fabric to an air pressure of 2.0 psi and observe for a five-minute period if leakage occurs. Calculate the leakage rate in cubic feet per minute on the basis of one square foot of fabric.

(2) Low Temperature Flexibility Test.- Low temperature flexibility shall be determined by exposing a 3 in. square sample of fabric and a $\frac{1}{8}$ in. diameter rod to -67 ± 4 F for four hours and then bending the sample 180 degrees, thickest coating out, around the rod. Bend test shall be performed at -67 ± 4 F.

(3) Resistance to Heat.- A sample of the fabric shall be placed in an oven and held at a temperature of 160 ± 2 F for six hours. The sample shall then be cooled to room temperature and inspected for tackiness, softening, blistering and other defects.

(4) Fatigue Resistance.- The fatigue test shall not cause any holes or tears to appear in the fabric and shall not cause the air permeability of the fabric to become greater than 20 cfm per square foot of fabric when tested with air under a pressure of 2 psi.

The fatigue test shall be performed as follows: A strip of fabric, 6 in. wide in the warp direction, shall be fastened in a frame as follows: Each end of the fabric strip shall be wrapped twice around a 0.032 in. thick by $\frac{5}{8}$ in. wide aluminum strip. The free length of fabric between the aluminum strips shall be 9 in. These two aluminum strips shall be riveted or bolted to a frame as shown in Fig. 2. With the frame held firmly fixed, air blasts shall be directed against the fabric and 5 in. from the plane of the nozzles located on opposite sides of the fabric and 5 in. from the plane of the fabric. Air blasts shall be emitted alternately from the two nozzles, and these blasts shall impinge upon the center of the fabric specimen. The nozzles shall have a 0.180 ± 0.005 in. diameter opening and the air pressure to rotary valve shall be adjusted to 100 psi. It is recommended that both nozzles be operated from the same source of compressed air through a rotary valve to insure the nozzles supplying air blasts alternately. The fabric shall be subjected to 280 ± 5 blasts of air per minute and the test shall be run for ten hours. At the completion of the fatigue test the air permeability of the fabric shall be determined through a 3.5-in. diameter area of the fatigued sample in accordance with Paragraph 4 (c) (1). This air permeability test shall be performed through the most worn portion of the fatigued fabric.

5. **QUALITY:** The product shall be uniform in quality and condition, clean, smooth, free from foreign materials, and from defects detrimental to fabrication, appearance, or performance. Products in which harmful defects are revealed during fabrication are subject to rejection.
6. **TOLERANCES:** Unless otherwise specified on the drawing or purchase order, the following tolerances apply:

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