

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 3274

Issued 12-1-51

Revised

SYNTHETIC RUBBER SHEET, NYLON FABRIC REINFORCED Aromatic Fuel Resistant

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. FORM: Sheet, strip, and molded shapes.
3. APPLICATION: Primarily for diaphragms in aircraft power plant fuel supply and control systems.
4. MATERIAL AND FABRICATION: Basis material shall be either a plain weave, or 2-up and 1-down twill weave, nylon fabric coated on both sides, unless otherwise specified, with a Buna-N type of synthetic rubber compound. Thickness of coating shall be substantially uniform on both sides of the sheet.
5. TECHNICAL REQUIREMENTS:
 - 5.1 General:
 - 5.1.1 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
 - 5.1.2 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.
 - 5.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed methods, insofar as practicable.

Property	Value		Test Method
	Warp	Filling	
5.2.1 <u>As Received</u> :			ASTM D751-46T
<u>Breaking Strength</u> ,			
Grab Method, lb, min			
Nominal Thickness, in.			
0.008	35	35	
0.010, 0.013)	65	60	
0.017, 0.020)			
0.025	300	300	
0.030	65	60	
0.050	300	300	

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment 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."

Property	Value		Test Method
	Warp	Filling	
Tear Resistance, Trapezoid Method, lb, min Nominal Thickness, in.			
0.008, 0.010, 0.013)	2.0	2.0	
0.017, 0.020)			
0.025	25.0	25.0	
0.030	5.0	5.0	
0.050	25.0	25.0	
Bursting Strength, Diaphragm Bursting Tester, psi, min Nominal Thickness, in.			
0.008	75		
0.010, 0.013)	135		
0.017, 0.020)			
0.025	200		
0.030	135		
0.050	200		
Scrub Resistance, 200 strokes	No separation of coating from fabric	Vanderbilt Rubber Hand- book, 1948 Edition, pages 433-435	
5.2.2			
Non-Aromatic Fuel Resistance: (After 24 hr drying at 158 F $\pm$ 2)		ASTM D471-49T	
Volume Change, % Nominal Thickness, in.			
0.008	-20 to +10	Medium: ASTM Fuel No. 1	
0.010, 0.013, 0.017)	-10 to + 5	Temperature: 70-85 F	
0.020, 0.025, 0.030)		Time: 24 hr	
0.050			
5.2.3			
Aromatic Fuel Resistance: (Immediate Deteriorated Properties)		Immerse in ASTM Fuel No. 2 at 70-85 F for 24 hr in accordance with ASTM D471- 49T, and test as noted	
Volume Change, % Nominal Thickness, in.		ASTM D471-49T	
0.008, 0.010)	0 to +35		
0.013, 0.017)			
0.020, 0.025)	0 to +40		
0.030, 0.050)			

5.2.3 Cont'd.

Property	Value	Test Method
Volume Change on Drying (after 24 hr aromatic fuel immersion) at 158 F $\pm$ 2 for 24 hr, % (based on unimmersed volume) Nominal Thickness, in.		ASTM D471-49T
All	0 to -25	
Scrub Resistance, 200 strokes	No deterioration and no separation of coating from fabric	Vanderbilt Rubber Hand- book, 1948 Edition, pages 433-435

5.2.4 Dry Heat Resistance:

Breaking Strength, Grab Method, lb, min Nominal Thickness, in.	Warp	Filling	ASTM D751-46T
0.008	35	35	
0.010, 0.013)			
0.017, 0.020)	65	60	
0.025	300	300	
0.030	65	60	
0.050	300	300	
Bursting Strength, Diaphragm Bursting Tester, psi, min Nominal Thickness, in.			ASTM D751-46T
0.008	75		
0.010, 0.013)	135		
0.017, 0.020)			
0.025	200		
0.030	135		
0.050	200		
Surface Hardening Bend (flat)	None No Cracks		

5.2.5 Low Temperature Brittleness:

As Received	Pass	ASTM D736-46T (Note)
After Aromatic Fuel Aging		Temperature: -65 F $\pm$ 2
Without Drying	Pass	Time: 5 hr
		Specimen to be one thick- ness of material

Note. To be specified only until satisfactory replacement test and values can be established.