

AERONAUTICAL MATERIAL SPECIFICATION

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SYNTHETIC RUBBER SHEET, NYLON FABRIC REINFORCED Aromatic Fuel Resistant

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter 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.

5.2.1 **As Received:**

5.2.1.1 **Breaking Strength,**

ASTM D751-46T

Grab Method, lb, min Nominal Thickness, in.	Warp	Filling
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

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5.2.1.2 Tear Resistance, Trapezoid Method, lb, min ASTM D751-46T

Nominal Thickness, in.	Warp	Filling
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

5.2.1.3 Bursting Strength, Diaphragm Bursting Tester, psi, min ASTM D751-46T

Nominal Thickness, in.	
0.008	75
0.010, 0.013)	135
0.017, 0.020)	
0.025	200
0.030	135
0.050	200

5.2.1.4 Scrub Resistance, 200 strokes Vanderbilt Rubber Handbook, 1948 Edition, pages 433-435

No Separation of coating from fabric

5.2.2 Non-Aromatic Fuel Resistance:
(After 24 hr drying at 158 F ± 2) ASTM D471-52T

Medium: ASTM Ref. Fuel A
Temperature: 70-85 F
Time: 24 hr

5.2.2.1 Volume Change, %
Nominal Thickness, in.

∅	0.008	-20 to +10
	0.010, 0.013, 0.017)	
	0.020, 0.025, 0.030)	-25 to 0
	0.050)	

5.2.3 Aromatic Fuel Resistance:
(Immediate Deteriorated Properties) Immerse in ASTM Ref. Fuel B at 70-85 F for 24 hr in accordance with ASTM D471-52T, and test as noted

5.2.3.1 Volume Change, % ASTM D471-52T
Nominal Thickness, in.

	0.008, 0.010)	0 to +35
	0.013, 0.017)	
	0.020, 0.025)	0 to +40
	0.030, 0.050)	

5.2.3.2 Volume Change on Drying
(after 2 1/2 hr aromatic fuel
immersion) at 158 F ± 2
for 2 1/2 hr, %
(based on unimmersed volume)
Nominal Thickness

ASTM D471-52T

All

-25 to 0

5.2.3.3 Scrub Resistance,
200 strokes

No deterioration Vanderbilt Rubber Handbook,
and no separation 1948 Edition, pages 433-435
of coating from
fabric

5.2.4 Dry Heat Resistance:

Age at 212 F ± 2 for 70 hr
in accordance with ASTM
D573-48, and test as noted.

5.2.4.1 Breaking Strength,
Grab Method, lb, min
Nominal Thickness, in.

ASTM D751-46T

Nominal Thickness, in.	Warp	Filling
0.008	35	35
0.010, 0.013)	65	60
0.017, 0.020)	300	300
0.025	65	60
0.030	300	300
0.050		

5.2.4.2 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)	200
0.025	135
0.030	200
0.050	

5.2.4.3 Surface Hardening

None

5.2.4.4 Bend (flat)

No Cracks

5.2.5 Low Temperature Brittleness:

ASTM D736-46T (See note)

Temperature: -65 F ± 2

Time: 5 hr

Specimen to be one thick-
ness of material

5.2.5.1 As Received

Pass

5.2.5.2 After Aromatic Fuel Aging
Without Drying

Pass

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