

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 3274 A

Issued 12-1-51

Revised 12-1-53

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

ASTM D751-46T

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

ASTM D751-46T

Method, lb, min

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

ASTM D751-46T

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

5.2.1.4 Scrub Resistance,
200 strokesNo Separation
of coating
from fabricVanderbilt Rubber Handbook,
1948 Edition, pages 433-435

5.2.2 Non-Aromatic Fuel Resistance:

(After 24 hr drying at 158 F $\pm$ 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

Ø

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, %

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 2½ hr aromatic fuel
immersion) at 158 F ± 2
for 2½ 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

	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

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)	
0.025	200
0.030	135
0.050	200

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)

5.2.5.1 As Received

Pass

Temperature: -65 F ± 2

Time: 5 hr

Specimen to be one thick-
ness of material

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.