



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AMS 3315D

Superseding 3315C

Issued 11-1-49

Revised 6-15-75

SILICONE RUBBER SHEET, GLASS FABRIC REINFORCED

1. SCOPE:

1.1 Form: This specification covers a silicone rubber, reinforced with glass fabric, in the form of calendered sheet.

1.2 Application: Primarily for gaskets or seals requiring a thin, resilient, nonporous sheet material suitable for operating at temperatures from -55° to $+205^{\circ}$ C (-67° to $+401^{\circ}$ F). The material is resistant to deterioration by weathering and petroleum-base engine oil and remains flexible over the temperature range noted. This material is not normally suitable for use in contact with gasoline or aromatic fuels and low aniline point petroleum-base fluids due to excessive swelling of the elastomer.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

AMS 2810 - Identification and Packaging, Elastomeric Products

AMS 3824 - Cloth, Type "E" Glass, Finished for Resin Laminates

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM D471 - Change in Properties of Elastomeric Vulcanizates Resulting From Immersion in Liquids

ASTM D573 - Accelerated Aging of Vulcanized Rubber by the Oven Method

ASTM D751 - Testing Coated Fabrics

ASTM D2137 - Low-Temperature Impact Test For Brittleness Determination of Flexible Polymeric Materials or Fabrics Coated Therewith, or Both

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall consist of a single ply of glass cloth coated on both sides with a silicone rubber compound substantially uniform in thickness on both faces of the cloth, calendered, and the rubber suitably cured to produce a product meeting all technical requirements of this specification.

SAE Technical Board rules provide that: "All technical reports, including standards approved practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard 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."

3.1.1 The glass cloth shall conform to AMS 3824 for the style specified for each nominal thickness, as follows:

Ø	Nominal Thickness		Glass Cloth Designation
	Inch	(Millimetres)	
	0.010	0.25	116
	0.017	0.43	128
	0.032	0.81	162 or 164
	0.050	1.27	184

3.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with the specified test methods, insofar as practicable:

3.2.1 As Received:

3.2.1.1 Breaking Strength, min

ASTM D751
Cut Strip Method

	Nominal Thickness		Warp		Fill	
	Inch	(Millimetres)	lb per in.	(kN/m)	lb per in.	(kN/m)
	0.010	(0.25)	70	(12.3)	70	(12.3)
	0.017	(0.43)	200	(35.0)	150	(26.3)
	0.032	(0.81)	400	(70.0)	300	(52.5)
	0.050	(1.27)	800	(140.1)	600	(105.1)

3.2.1.2 Hydrostatic Pressure Resistance at 20 psi (138 kPa)

No Leaks

Method B, Procedure 2
Time: 1 hr, min

3.2.1.3 Adhesion, min

10 lb per in. (See 3.2.1.3.1)
(1.75 kN/m)

3.2.1.3.1 If it is impossible to strip adhesion test specimens so as to make the test properly, the adhesion shall be considered acceptable.

3.2.2 Lubricating Oil Resistance:
(Immediate Deteriorated Properties)

ASTM D471
Medium: ASTM Oil No. 1
Temperature: 175°C ± 3
(347°F ± 5.4)
Time: 70 hr ± 0.5

3.2.2.1 Volume Change, %

0 to +10

3.2.2.2 Decomposition

None

3.2.2.3 Surface Tackiness

None

3.2.3 Dry Heat Resistance:

4.5.1

3.2.3.1 Decomposition or Softening

None

3.2.3.2 Surface Tackiness

None

3.2.3.3 Bend (flat)

No cracking
or checking

Ø 3.2.4 Low Temperature Resistance:

ASTM D2137, Method B
 Temperature: $-55^{\circ}\text{C} \pm 1$
 $(-67^{\circ}\text{F} \pm 1.8)$

- 3.2.4.1 Flex No cracks
- 3.2.4.2 Delamination None

3.2.5 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.2.6 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.

3.3 Quality: The product shall be uniform in quality and condition, clean, smooth, and free from chalky spots, delamination, and foreign materials and from imperfections detrimental to fabrication, appearance, or performance of parts.

3.4 Sizes and Tolerances: Unless otherwise specified, coated fabric shall be supplied in nominal thicknesses of 0.010, 0.017, 0.032, and 0.050 in. (0.25, 0.43, 0.81, and 1.27 mm), as ordered, and nominal width of 36 in. (914 mm); tolerances shall be as specified in 3.4.1 and 3.4.2.

3.4.1 Thickness:

Nominal Thickness		Tolerance Plus and Minus	
Inch	(Millimetres)	Inch	(Millimetres)
0.010	(0.25)	0.001	(0.03)
0.017	(0.43)	0.002	(0.05)
0.032	(0.81)	0.004	(0.10)
0.050	(1.27)	0.005	(0.13)

3.4.2 Width: ± 1 in. (± 25 mm).

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to assure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

Ø 4.2.1 Acceptance Tests: Tests of the product to determine conformance to material (3.1), properties as received (3.2.1), and sizes and tolerances (3.4) requirements are classified as acceptance or routine control tests.

Ø 4.2.2 Qualification Tests: Tests to determine conformance to all technical requirements of this specification are classified as qualification or periodic control tests and may be the basis for approval of the product (See 4.4.1).

Ø 4.3 Sampling: Sufficient product shall be taken at random from each lot to perform all required tests in triplicate.

4.3.1 A lot shall be all product produced in a continuous run from the same roll of fabric and the same batch of compound and presented for vendor's inspection at one time.