SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
400 Commonwealth Dr., Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 3196E

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Superseding AMS 3196D

SILICONE RUBBER SPONGE
Closed Cell, Firm

1. SCOPE:

1.1 Form: This specification covers a silicone rubber sponge in the form of sheet, strip, extrusions, and molded shapes.

1.2 Application: Primarily for general applications requiring closed-cell, firm sponge rubber that will be flexible from -75° to +205°C (-100° to +400°F). Compression set may be high at the higher temperature.

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

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 2810 - Identification and Packaging, Elastomeric Products

2.2 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be a compound based on a silicone rubber, suitably cured to produce a product meeting the requirements of 3.2 and 3.3.

3.2 Finish: The top and bottom surfaces of sheet and strip and the exterior surfaces of molded parts and extrusions (except ends) shall have a natural finish, unless otherwise specified.

3.3 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with ASTM D1056, insofar as practicable:

3.3.1 As Received: Temperature: 25°C ± 5 (77°F ± 9)

3.3.1.1 Compression-Deflection: 12 - 20 psi (83 - 138 kPa)

3.3.1.2 Density, maximum

Nominal Thickness	
Under 0.25 inch (6.35 mm)	0.030 pound per cubic inch (0.83 mg/m^3)
0.25 inch (6.35 mm) and over	0.025 pound per cubic inch (0.69 mg/m^3)

3.3.2 Compression Set: Temperature: 100°C ± 1 (212°F ± 2)

3.3.2.1 Percent of Original Deflection, maximum: 60% Time: 22 hours ± 0.2

3.3.3 Ø Compression-Deflection at Low Temperature: Preproduction Value ± 20% Temperature: -75°C ± 3 (-100°F ± 5) Time: 5 hours ± 0.2

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

3.3.5 Ø Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service determined by a procedure agreed upon by purchaser and vendor. Discoloration of metal shall not be considered objectionable. Standards for acceptance shall be as agreed upon by purchaser and vendor.

3.4 Quality: The product, as received by purchaser, shall be uniform in quality and condition, smooth, as free from foreign materials as commercially practicable, and free from imperfections detrimental to usage of the product.

3.5 Tolerances: Shall be as follows; measurements shall be made in accordance with ASTM D1056:

3.5.1 Sheet and Strip:

3.5.1.1 Thickness:

TABLE I

Nominal Thickness Inch	Tolerance, Inch plus	minus
0.063	0.016	0.016
0.125, 0.188	0.031	0.031
0.250, 0.312	0.047	0.031
0.375, 0.500	0.047	0.047

TABLE I (SI)

Nominal Thickness Millimetres	Tolerances, Millimetres plus	minus
1.60	0.41	0.41
3.18, 4.78	0.79	0.79
6.35, 7.92	1.19	0.79
9.52, 12.70	1.19	1.19

3.5.1.2 Length and Width:

TABLE II

Nominal Length and Width Inches	Tolerance, Inch plus and minus
Up to 6, incl	0.125
Over 6 to 18, incl	0.250
Over 18	0.375

TABLE II (SI)

Nominal Length and Width Millimetres	Tolerance, Millimetres plus and minus
Up to 152, incl	3.18
Over 152 to 457, incl	6.35
Over 457	9.52

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of sponge shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the sponge conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and as preproduction tests and shall be performed prior to or on the initial shipment of sponge to a purchaser, on each lot, when a change in material or processing, or both, requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling: Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient sponge shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall be all sponge produced from the same batch of compound processed in one continuous production run and presented for vendor's inspection at one time. An inspection lot shall not exceed 500 pounds (227 kg) and may be packaged in smaller quantities and delivered under the basic lot approval provided lot identification is maintained.

4.3.1.2 A batch shall be the quantity of compound run through a mill or mixer at one time.

4.3.1.3 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5.1 shall state that such plan was used.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor.

4.4 Approval:

4.4.1 Sample sponge shall be approved by purchaser before sponge for production use is supplied, unless such approval be waived by purchaser. Results of tests on production sponge shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production sponge which are essentially the same as those used on the approved sample sponge. If necessary to make any change in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material or processing, or both, and, when requested, sample sponge. Production sponge made by the revised procedure shall not be shipped prior to receipt of reapproval.