



# AEROSPACE MATERIAL SPECIFICATION

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

## AMS 3196C

Superseding AMS 3196B

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### 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  $-75^{\circ}\text{C}$  ( $-105^{\circ}\text{F}$ ) to  $+205^{\circ}\text{C}$  ( $+400^{\circ}\text{F}$ ). 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 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, 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 American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D736 - Low Temperature Flexure Test  
ASTM D1056 - Sponge and Expanded Cellular Rubber Products

- 2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

#### 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 specified ASTM methods insofar as practicable:

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3.3.1 As Received:

ASTM D1056

Temperature:  $25^{\circ} \text{C} \pm 5$   
 $(77^{\circ} \text{F} \pm 9)$

3.3.1.1 Compression-Deflection

12 - 20 psi  
 (82.8 - 138 kPa)

3.3.1.2 Density, max  
Nominal Thickness

Under 0.25 in. (6.35 mm)	0.030 lb per cu in. (0.830 Mg/m <sup>3</sup> )
0.25 in. (6.35 mm) and over	0.025 lb per cu in. (0.692 Mg/m <sup>3</sup> )

3.3.2 Compression Set:

ASTM D1056

Temperature:  $100^{\circ} \text{C} \pm 1$   
 $(212^{\circ} \text{F} \pm 2)$

3.3.2.1 Percent of Original  
Deflection, max

60

Time: 22 hr  $\pm 0.2$

3.3.3 Low-Temperature Brittleness:

Pass

ASTM D736

Temperature:  $-75^{\circ} \text{C} \pm 3$   
 $(-103^{\circ} \text{F} \pm 5)$

Time: 5 hr  $\pm 0.2$

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

3.3.5 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. Method of test and standards for acceptance shall be as agreed upon by purchaser and vendor.

3.4 Quality: The product shall be uniform in quality and condition, clean, smooth, as free from foreign materials as commercially practicable, and free from internal and external imperfections detrimental to fabrication, appearance, or performance of parts.

3.5 Tolerances: Unless otherwise specified, the following tolerances shall apply; measurements shall be made in accordance with ASTM D1056:

3.5.1 Sheet and Strip:

3.5.1.1 Thickness:

TABLE I

Nominal Thickness Inches	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	Tolerance, Millimetres	
	plus	minus
1.60	0.41	0.41
3.18, 4.76	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 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 4.5. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the product 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 qualification tests.
- 4.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, qualification test material shall be submitted to the qualification cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.
- 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 from the same batch of compound processed in one continuous run and submitted for vendor's inspection at one time.

∅ 4.3.2 A batch shall be the quantity of compound run through a mill or mixer at one time.

4.4 Approval:

4.4.1 Sample material shall be approved by purchaser before material for production use is supplied, unless such approval be waived. Results of tests on production material 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 material which are essentially the same as those used on the approved sample material. If any change is necessary 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 and processing and, when requested, sample material. Production material made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of the product shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, vendor's compound number, form or part number, and quantity.

4.5.2 The vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number and its revision letter, contractor or other direct supplier of material, supplier's compound number, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

4.6 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the product may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the product represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Identification and Packaging:

5.1.1 The product shall be identified and packaged in accordance with AMS 2810.

5.1.2 For direct U. S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as specified in AMS 2810 will be acceptable if it meets the requirements of Level C.

6. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection.

8. NOTES: