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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3194C

Issued MAY 1968
Revised AUG 1994
Reaffirmed APR 2001

Superseding AMS 3194B

Silicone Rubber Sponge
Closed Cell, Firm, Extreme Low Temperature

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:

This sponge has been used typically for general applications requiring closed-cell, firm sponge rubber that will be flexible from -110 to +205 °C (-166 to +401 °F), but usage is not limited to such applications. Compression set may be high at the higher temperature.

1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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 publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2810 Identification and Packaging, Elastomeric Products

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-7161 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS: http://www.sae.org

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM D 746 Brittleness Temperature of Plastics and Elastomers by Impact
ASTM D 1056 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.

3.3 Properties:

The product shall conform to the requirements shown in Table 1, 3.3.5, and 3.3.6; tests shall be performed on the product supplied and in accordance with ASTM D 1056, except as otherwise specified herein:

TABLE 1 - Properties

Paragraph	Test	Requirement	Test Method
3.3.1	Compression-Deflection	12 to 20 psi (83 to 138 kPa)	25 °C ± 5 (77 °F ± 9)
3.3.2	Density, max		
	Nominal Thickness		
3.3.2.1	Under 0.25 inch (6.35 mm)	0.030 pounds/cubic inch (0.83 mg/m^3)	
3.3.2.2	0.25 inch (6.35 mm) and over	0.025 pounds/cubic inch (0.69 mg/m^3)	
3.3.3	Compression Set:		100 °C ± 1 (212 °F ± 2)
3.3.3.1	Percent of Original Deflection, max	60%	22 hours ± 0.2
3.3.4	Brittleness Temperature, max	-75 °C (-103 °F)	ASTM D 746

3.3.5 Weather Resistance: When specified, the product shall have weather resistance acceptable to purchaser, determined by a procedure acceptable to purchaser.

3.3.6 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service, determined by a procedure acceptable to purchaser. Discoloration of metal shall not be considered objectionable. Standards for acceptance shall be acceptable to purchaser.

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 shown in Table 2 and Table 3; measurements shall be made in accordance with ASTM D 1056:

3.5.1 Sheet and Strip:

3.5.1.1 Thickness: Shall be as shown in Table 2.

TABLE 2A - Tolerances, Inch/Pound Units

Nominal Thickness Inch	Tolerance Inch Plus	Tolerance Inch Minus
Up to 0.063, incl	0.030	0.016
Over 0.063 to 0.188, incl	0.030	0.030
Over 0.188 to 0.313, incl	0.050	0.030
Over 0.313 to 0.500, incl	0.060	0.060
Over 0.500 to 0.750, incl	0.090	0.090
Over 0.750	0.120	0.120

TABLE 2B - Tolerances, SI Units

Nominal Thickness Millimeters	Tolerance Millimeters Plus	Tolerance Millimeters Minus
Up to 1.60, incl	0.76	0.41
Over 1.60 to 4.78, incl	0.76	0.76
Over 4.78 to 7.95, incl	1.27	0.76
Over 7.95 to 12.70, incl	1.52	1.52
Over 12.70 to 19.05, incl	2.29	2.29
Over 19.05	3.05	3.05

3.5.1.2 Length and Width: Shall be as shown in Table 3.

TABLE 3A - Tolerances, Inch/Pound Units

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 3B - Tolerances, SI Units

Nominal Length and Width Millimeters	Tolerance Millimeters 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 manufacturer of sponge shall supply all samples and shall be responsible for all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that sponge conforms to the requirements of this specification.

4.2 Classification of Tests:

All technical requirements are acceptance tests and 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 ingredients and/or processing 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 and Testing:

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 from the same batch of compound, processed in one continuous production run, and presented for manufacturer's inspection at one time.

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 A statistical sampling plan, acceptable to purchaser, may be used in lieu of sampling as in 4.3.1 and the report of 4.5 shall state that such plan was used.

4.3.2 For Preproduction Tests: Shall be acceptable to purchaser.