

Issued JUL 1957
Revised JAN 1992
Reaffirmed JUN 2008

Superseding AMS 3196E

**Sponge, Silicone Rubber
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:

This product has been used typically for general applications requiring closed-cell, firm sponge rubber that will be flexible from -75 to +205 °C (-103 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

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2008 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: <http://www.sae.org>

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor, West Conshohocken, PA 19428-2959.

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; 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 - 20 psi (83 - 138 kPa)	25 °C ± 5 (77 °F ± 9)
3.3.2	Density, maximum Nominal Thickness		
3.3.2.1	Under 0.25 inch (6.35 mm)	0.030 pounds/cubic inch (830 kg/m ³)	
3.3.2.2	0.25 inch (6.35 mm) and over	0.025 pounds/cubic inch (692 kg/m ³)	
3.3.3	Compression Set:		100 °C ± 1 (212 °F ± 2)
3.3.3.1	Percent of Original Deflection, maximum	60%	22 hours ± 0.2
3.3.4	Brittleness Temperature, maximum	-55 °C (-67 °F)	ASTM D 746

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

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 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 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:

TABLE 2A - Thickness Tolerances, Inch/Pound Units

Nominal Thickness Inch	Tolerance	Tolerance
	Inch plus	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 - Thickness Tolerances, SI Units

Nominal Thickness Millimeters	Tolerance	Tolerance
	Millimeters plus	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:

TABLE 3A - Length and Width 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 - Length and Width, 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 vendor of sponge shall supply all samples for vendor's tests and shall be responsible for performing all required tests. 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 for 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 produced from the same batch of compound processed in one continuous production run and presented for vendor's inspection at one time. A 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 has 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 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 ingredients and/or processing and, when requested, sample sponge. Production sponge made by the revised procedure shall not be shipped prior to receipt of reapproval.
- 4.5 Reports:
- The vendor of sponge shall furnish with each shipment a report showing the results of tests to determine conformance to the technical requirements. This report shall include the purchase order number, vendor's compound number, lot number, AMS 3196F, form or part number, and quantity.
- 4.6 Resampling and Retesting:
- If any specimen used in the above tests fails to meet the specified requirements, disposition of the sponge 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 sponge represented. Results of all tests shall be reported.