



AEROSPACE MATERIAL SPECIFICATION

AMS3316™**REV. A**

Issued 2001-02
Reaffirmed 2007-06
Revised 2021-12

Superseding AMS3316

(R) Elastomer: Silicone Rubber (MQ/VMQ), Fiberglass Fabric Reinforced
65 to 75 Shore A Hardness

RATIONALE

Update per Five-Year Review requirements and to update the format to the latest AMS3XXX series template.

1. SCOPE

1.1 Form

This specification covers a fiberglass reinforced silicone rubber (MQ/VMQ) in the form of sheet, strip, and molded parts, color coded light blue per ARP1527.

1.2 Application

These products have been used typically for grommets, loop clamps or anti-chafing cushions between metal surfaces operating at temperatures between -67 to 500 °F (-55 to 260 °C) where self-extinguishing material is required, but usage is not limited to such applications. The service temperature range of the material is a general temperature range, but the presence of particular fluids and specific design requirements may modify this range. Each application should be considered separately. It is the responsibility of the user to determine that this specification is appropriate for the environments (temperature range, fluids exposure, etc.) in which it is sought to be used. This cushion material is compounded prioritizing high temperature performance over fluid resistance. It is recommended for use in environments where fluid exposure is minimal.

1.3 Order of Precedence

This specification is in addition to and in no way limiting, superseding, or abrogating any contractual obligation as required by the applicable procurement document. In the event of conflict in requirements, the order of precedence shall be:

1. Procurement Document or Contractual Agreement and all statutory and regulatory requirements (excluding this document).
2. Applicable purchaser's drawing and/or design data.
3. Specifications referenced on the drawing.
4. This document.
5. All specifications referenced in this document.

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Documents

Document Sharing Hub

1.4 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 issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2279	Tolerances, Rubber Products
AMS2810	Identification and Packaging, Elastomeric Products
AMS4943	Titanium Alloy, Hydraulic, Seamless Tubing, 3.0Al - 2.5V, Annealed
ARP1527	Color Coding - Elastomers for Tube Clamp Cushions
AS85052	Clamp Assembly, Loop Type, Cushioned, General Specification for
AS85052/3	Clamp, Loop, Tube 17-7 PH CRES, 500 °F
AS85449	Clamp Assembly, Saddle Type, Cushioned, General Specification For
AS85449/3	Clamp Assembly, Saddle Type, Cushioned, High Temperature

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D297	Rubber Products - Chemical Analysis
ASTM D395	Test Methods for Rubber Property—Compression Set
ASTM D412	Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
ASTM D471	Test Method for Rubber Property - Effect of Liquids
ASTM D573	Test Method for Rubber- Deterioration in an Air Oven
ASTM D624	Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
ASTM D2240	Rubber Property - Durometer Hardness

2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-STD-289A Visual Inspection Guide for Rubber Sheet Material

MIL-PRF-7808 Performance Specification; Lubricating Oil, Aircraft Turbine Engine, Synthetic Base

Federal Aviation Regulations, Part 25, Fire Protection, Section 25.853 - Compartment Interiors

3. TECHNICAL REQUIREMENTS

3.1 Material

Shall be prepared from ingredients as shall be necessary to achieve the requirements detailed in this standard and shall be a compound, based on the polymer and fabric specified in 1.1, suitably cured to produce a product meeting the requirements of 3.2, and colored light blue in accordance with ARP1527. Reprocessed vulcanized material is not acceptable

3.2 Properties

The fiberglass fabric reinforced product (except where noted in Table 1) shall conform to the requirements in Table 1.

Table 1 - Physical property requirements

The following testing shall be performed every five (5) years and test reports shall be made available upon request.

	Property	Test Sample	Requirement	Test Method
3.2.1				
3.2.1.1	Hardness, Durometer "A"	BUTTON or plied platens	70 ± 5	ASTM D 2240 Tested on rubber without fabric.
3.2.1.2	Tensile Strength, minimum	ASTM Platen	1200 psi (8.2 MPa)	ASTM D 412, Die C
3.2.1.3	Elongation, minimum	ASTM Platen	30%	ASTM D 412, Die C
3.2.1.4	Tear Strength, minimum	ASTM Platen	300 ppi (52.5 N/m)	ASTM D624, Die B
3.2.1.5	Specific Gravity	ASTM Platen	Preproduction value ±0.3	ASTM D 297 Hydrostatic Method
3.2.1.6	Compression Set Percent of Original Deflection, maximum	ASTM Platen, Plied Discs	30	ASTM D395, Method B Temperature: 302 °F ± 5 °F (150 °C ± 3 °C) Time: 70 hours ± 0.5 hours
3.2.2	Dry Heat Resistance ASTM D573			
3.2.2.1	Hardness Change, Durometer "A"	BUTTON or plied platens	0 to +10	ASTM D573 Temperature: 500 °F ± 5 °F (260 °C ± 2.8 °C) Time: 70 hours ± 0.5 hours
3.2.2.2	Tensile Strength, minimum	ASTM Platen	1000 psi (6.9 MPa)	
3.2.2.3	Elongation, minimum	ASTM Platen	30%	
3.2.2.4	Tear Strength, minimum	ASTM Platen	300 ppi (52.5 N/m)	Hardness tested on rubber without fabric. Tear Strength per ASTM D624 using Die B
3.2.2.5	Weight Loss, maximum	ASTM Platen	5%	