



AEROSPACE MATERIAL SPECIFICATION

AMS3320™**REV. J**

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Superseding AMS3320H

(R) Elastomer: Silicone (VMQ) Rubber Sheet, Glass Cloth Reinforced
Heat and Weather Resistant
60 to 80 Type "A" Durometer Hardness

RATIONALE

Results of Five-Year Review and update and to conform to the new AMS3XXX format.

1. SCOPE

1.1 Form

This specification covers a silicone (VMQ) elastomer, reinforced with glass cloth, in the form of sheet.

1.2 Application

This silicone sheet has resistance to deterioration by weathering and petroleum-based lubrication oil, but usage is not limited to such applications and has been used typically for gaskets or seals requiring a resilient, nonporous sheet material. This material type has a typical service temperature range of -67 to +401 °F (-55 to +205 °C) and remains flexible over the temperature range noted. 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 material is not normally suitable for use in contact with gasoline or aromatic fuels and low-aniline-point, petroleum-based fluids due to excessive swelling of the elastomer.

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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

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
AMS3824	Cloth, Glass Finished for Resin Laminates

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 D395	Standard Test Methods for Rubber Property - Compression Set
ASTM D471	Standard Test Methods for Rubber Property - Effect of Liquids
ASTM D573	Standard Test Methods for Rubber - Deterioration in An Air Oven
ASTM D751	Standard Test Methods for Coated Fabrics
ASTM D2137	Standard Test Methods for Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
ASTM D2240	Standard Test Methods for Rubber Property - Durometer Hardness

2.3 NCSL Publications

Available from NCSL International, 2995 Wilderness Place, Suite 107, Boulder, CO 80301, Tel: 303-440-3339, www.ncsli.org.

ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes

3. TECHNICAL REQUIREMENTS

3.1 Material and Fabrication

Sheet shall be fabricated from a single ply of woven glass cloth conforming to AMS3824, Style 162, 182, 184, 1523, or 1564, impregnated with, and bonded between two essentially equal thickness layers of an elastomer compound, based on the polymer specified in 1.1, molded to an overall thickness, after curing, of 0.062 to 0.125 inch (1.57 to 3.18 mm), and suitably cured to produce a product meeting the requirements of 3.2.

3.1.1 The silicone compound utilized to fabricate this product shall conform to an existing Industry (SAE/ASTM, etc.), Military, Federal, or internally generated material specification and all acceptance testing required by the pertinent specification shall be performed prior to its use in this product.

3.1.2 The silicone elastomer compound material utilized shall be based on 100% virgin silicone (VMQ) elastomer. Reprocessed vulcanized material is not acceptable.

3.2 Properties

This product shall conform to the requirements shown in Table 1.

Table 1 - Initial test requirements

Paragraph	Property	Test Sample	Requirement	Test Method
3.2.1	Original Properties - Sheet			
3.2.1.1	Hardness, Durometer Type "A"	Plied Product	70 ± 10	4.2.5.1
3.2.1.2	Breaking Strength, minimum	Cut from Product	300 pounds force/inch (52.5 kN/m)	ASTM D751, Cut Strip Method
3.2.1.3	Compression Set Percent of Original Deflection, maximum	Buttons (molded from base compound)	35%	4.2.5.2
3.2.1.4	Low-Temperature Brittleness	Cut from Product	No Cracks No Breaks, No Delamination	ASTM D2137, Test Method B Temperature: -67 °F ± 2 °F (-55 °C ± 1 °C) Time: 5 hours ± 0.5 hour
3.2.2	Dry Heat Resistance - ASTM D573			
3.2.2.1	Hardness Change, Durometer Type "A"	Plied Product	-5 to +10	ASTM D573 Temperature: 437 °F ± 5 °F (225 °C ± 3 °C) Time: 22 hours ± 0.5 hour
3.2.2.2	Bend	Cut from Product	No Cracking	
				4.2.5.3
3.2.3	Fluid Resistance - IRM901 - ASTM D471			
3.2.3.1	Hardness Change, Durometer Type "A"	Plied Product	-15 to +5	ASTM D471 Medium: IRM901 Oil Temperature: 347 °F ± 5 °F (175 °C ± 3 °C) Time: 70 hours ± 0.5 hour
3.2.3.2	Volume Change	Cut from Product	0 to +10%	
3.2.4	Weather Resistance - ASTM D1149			
3.2.4.1	Weather Resistance	Cut from Product	No Evidence of Cracking	ASTM D1149, Method B, Procedure B2 Temperature: 104 °F ± 2 °F (40 °C ± 1 °C) Time: 7 days ± 2 hours Ozone Pressure: 50 lb/in ² min