



AEROSPACE MATERIAL SPECIFICATION

AMS3306™**REV. D**

Issued	1986-01
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Stabilized	2014-05
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Superseding AMS3306C

(R) Elastomer: Methyl/Methyl Vinyl Silicone, (MQ/MVQ)
High Temperature/Gas Turbine Engine Oil/Phosphate Esther Hydraulic Fluid Resistant
High Strength/High Tear/High Modulus 55 to 65 Type "A" Hardness
For Products in High Temperature Environments/Gas Turbine Engine Oils

RATIONALE

This document was brought out of Stabilization to better define the thermal shock testing and to change the horizontal burn test method from one more specific to plastics, to a test method more specific to aerospace elastomers. Reformatted into the new AMS3000 series template which includes a Five-Year preproduction re-testing requirement.

1. SCOPE

1.1 Form

This specification covers a methyl or methyl vinyl silicone rubber material that can be used to manufacture product in the form of sheet, strip, tubing, extrusions, and molded shapes. This specification should not be used for molded rings, compression seals, O-ring cord, and molded in place gaskets for aeronautical and aerospace applications without complete consideration of the end use prior to the selection of this material.

1.2 Application

This material type has resistance to high temperature environments as well as gas turbine engine oil, but usage is not limited to such applications. This material type has a typical service temperature range of -85 to +437 °F (-65 to +225 °C). 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. These products are not normally suitable for use in contact with gasoline or aromatic fuels and low-aniline-point petroleum-based fluids due to excessive swelling.

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

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Documents
Document Sharing Hub

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 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
AMS3021	Fluid, Reference, For Testing Di-Ester (Polyol) Resistant Material
AS1241	Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft

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	Standard Test Methods for Rubber Products - Chemical Analysis
ASTM D395	Standard Test Methods for Rubber Property - Compression Set
ASTM D412	Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension
ASTM D471	Standard Test Methods for Rubber Property - Effect of Liquids
ASTM D573	Standard Test Methods for Rubber - Deterioration in an Air Oven
ASTM D624	Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
ASTM D2137	Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
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-810 Environmental Test Methods and Engineering Guidelines

Copies of these documents are available from the U.S. Government Publishing Office, Washington, DC, <http://bookstore.gpo.gov>.

CFR 14 Part 25, §25.853, w/Appendix F

2.4 Other 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 Attribute

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 specified in 1.1, suitably cured to produce a product meeting the requirements of 3.2. Reprocessed vulcanized material is not acceptable.

3.2 Properties

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

Table 1 - Properties

The following testing shall be performed every 5 years and reports shall be available upon request.

Paragraph	Property	Test Sample	Requirement	Test Method
3.2.1	As Received			
3.2.1.1	Hardness, Durometer, Type "A"	BUTTON or Plied Platen	60 ± 5	ASTM D2240
3.2.1.2	Tensile Strength, minimum	ASTM Platen	1200 psi (8.27 MPa)	ASTM D412, Die B or C
3.2.1.3	Elongation, minimum	ASTM Platen	400%	ASTM D412, Die B or C
3.2.1.4	Tensile Stress at 100% Elongation, minimum	ASTM Platen	150 psi (1.03 MPa)	ASTM D412, Die B or C
3.2.1.5	Tear Resistance, minimum	ASTM Platen	150 ppi (26 kN/m)	ASTM D624, Die B
3.2.1.6	Specific Gravity	ASTM Platen	Preproduction Value ±0.03	ASTM D7297 Hydrostatic Method
3.2.1.7	Compression Set: Percent of Original Deflection, maximum	ASTM Platen, Plied Discs	30	ASTM D395, Method B Temperature: 347 °F ± 5 °F (175 °C ± 3 °C) Time: 22 hours ± 0.5 hours