



AEROSPACE MATERIAL SPECIFICATION

AMS3345™**REV. G**

Issued	1956-07
Reaffirmed	2001-10
Revised	2020-05

Superseding AMS3345F

(R) Elastomer: Methyl Phenyl Vinyl Silicone (PVMQ)
Very Low Temperature/Aircraft Piston Engine Oil Resistant
High Strength/Tear Resistant
45 to 55 Durometer Type 'A' Hardness
For Products in Aircraft Piston Engine Oil/Low Temperature Environments

RATIONALE

For Five-Year Review and to incorporate the new AMS3XXX series template format. Extends preproduction testing cycle from 3 to 5 years per CE committee direction.

1. SCOPE

1.1 Form

This specification covers a methyl phenyl vinyl silicone rubber material that can be used to manufacture product in the form of sheet, strip, tubing, molded shapes, and extrusions. For molded rings, compression seals, O-ring cord, and molded-in-place gaskets for aeronautical and aerospace applications, use the corresponding AMS7000 series specification.

1.2 Application

This material type has resistance to very low temperature, weathering, as well as aircraft piston engine oil but usage is not limited to such applications. This material type has a typical service temperature range of -130 to +401 °F (-90 to +205 °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, 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 of the elastomer.

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<https://www.sae.org/standards/content/AMS3345G/>

Documents

Document Sharing Hub

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.
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

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 Elastomers - Tension
ASTM D471	Standard Test Methods for Rubber Property - Effect of Liquids
ASTM D573	Standard Test Method for Rubber - Deterioration in an Air Oven
ASTM D624	Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
ASTM D2137	Standard Test Methods for Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness

2.3 Other

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 product meeting the requirements of 3.2. Reprocessed vulcanized material is not acceptable.

3.2 Properties

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

Table 1 - Physical property requirements

The following testing shall be performed every 5 years and test reports shall be made 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 platens	50 ± 5	ASTM D2240
3.2.1.2	Tensile Strength, minimum	ASTM Platen	1000 psi (6.90 MPa)	ASTM D412, Die C
3.2.1.3	Elongation, minimum	ASTM Platen	450%	ASTM D412, Die C
3.2.1.4	Tensile Stress at 100% Elongation, minimum	ASTM Platen	90 psi (621 kPa)	ASTM D412, Die C
3.2.1.5	Tear Strength, minimum	ASTM Platen	150 ppl (26.3 kN/m)	ASTM D624, Die B
3.2.1.6	Specific Gravity	ASTM Platen	Preproduction Value ±0.03	ASTM D297, Hydrostatic Method
3.2.1.7	Compression Set, Percent of original deflection	ASTM Platen, Plied Discs	55%	ASTM D395, Method B Temperature: 347 °F ± 5 °F (175 °C ± 3 °C) Time: 22 hours ± 0.5 hours
3.2.1.8	Low-Temperature Brittleness	ASTM Platen	Pass	ASTM D2137, Method C Temperature: -130 °F ± 5 °F (-90 °C ± 3 °C) Time: 3 minutes ± 0.3 minutes
3.2.2	Dry Heat Resistance ASTM D573			
3.2.2.1	Hardness Change, Durometer Type "A"	BUTTON or plied platens	0 to +15	ASTM D573 Temperature: 392 °F ± 5 °F (200 °C ± 3 °C) Time: 70 hours ± 0.5 hours
3.2.2.2	Tensile Strength Change, maximum	ASTM Platen	-40%	
3.2.2.3	Elongation Change, maximum	ASTM Platen	-50%	
3.2.3	Fluid Immersion - ASTM D471 - IRM901			
3.2.3.1	Hardness Change, Durometer Type "A"	BUTTON or plied platens	-15 to +5	ASTM D471 Temperature: 302 °F ± 5 °F (150 °C ± 3 °C) Time: 70 hours ± 0.5 hours
3.2.3.2	Tensile Strength Change, maximum	ASTM Platen	-40%	
3.2.3.3	Elongation Change, maximum	ASTM Platen	-40%	
3.2.3.4	Volume Change	ASTM Platen	0 to +15%	
3.2.3.5	Decomposition	ASTM Platen	None	Fluid: IRM901
3.2.3.6	Surface Tackiness	ASTM Platen	None	