



AEROSPACE MATERIAL SPECIFICATION

AMS3742™

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Elastomer: Rubber, Silicone (MQ/VMQ/PVMQ)
Flame Retardant, Low Smoke Density, Low Smoke Toxicity
50 – 60 Durometer Type A Hardness
for Products in Pressurized Aircraft Compartment Interiors

RATIONALE

This document is being created to fill a need for a lower durometer material to manufacture products utilized in pressurized aircraft compartment interiors.

1. SCOPE

1.1 Form

This specification covers a self-extinguishing, pigmentable silicone (MQ/VMQ/PVMQ) elastomer that can be used to manufacture product in the form of molded, extruded, and/or calendared, sheets, strips, and shapes.

1.2 Application

This material is intended for use in the manufacture of products that are safe to use inside pressurized aircraft compartment interiors such as grommets, supports, cushions, bumpers, bushings, and decorative surfaces, where flame resistance, low smoke density and non-toxic gas generation are required, but usage is not limited to such applications. This material is not intended for use in firewall seal applications.

Silicone typically exhibits resistance to deterioration by weathering and petroleum-based lubrication oils, hydraulic fluids, and cleaning fluids. The typical service temperature range of these silicone materials is between -67 to 392 °F (-55 to +200 °C) and remains flexible over the temperature range noted.

These products usually operate within a typical service temperature range of -67 to +212 °F (-55 to +100 °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 suitable for use in contact with gasoline and aromatic fuels and low alkaline petroleum-based fluids due to excessive swelling of the elastomer.

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS3742/>

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. All statutory and regulatory requirements,
2. Procurement document or contractual agreement,
3. Applicable purchaser's drawing and/or design data, including the specifications and requirements specified therein,
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 form 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

AMS-STD-595 Colors used in Government Procurement

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 D573 Standard Test Methods for Rubber - Deterioration in an Air Oven

ASTM D624 Standard Test Methods for Tear Strength of Conventional Vulcanized Rubbers and Thermoplastic Elastomers

ASTM D1329 Evaluating Rubber Property - Retraction at Low Temperature (TR Test)

ASTM D2240 Standard Test Methods for Rubber Property-Durometer Hardness

ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

2.3 FAA Publications

Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591, Tel: 866-835-5322, www.faa.gov.

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

2.4 Other Publications

Available online from the National Conference of Standards Laboratories, www.ncsli.org.

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

3. TECHNICAL REQUIREMENTS

3.1 Material

The material shall be a compound based on a silicone elastomer containing the ingredients necessary to achieve the requirements detailed in this standard. The compound shall be suitably cured to produce a product meeting the requirements of 3.2. The material shall be based on 100% virgin silicone (MQ/VMQ/PVMQ) elastomer.

Reprocessed vulcanized material is not acceptable. The material shall not contain any fabric reinforcement unless specified otherwise in purchase documents or design data.

3.1.1 The color of the base compound shall be a neutral color that is pigmentable to match customer requirements.

3.1.1.1 If color matching is required, it is the responsibility of the customer to designate the specific color required, the method of inspection, and the RGBY tolerance limits within the verbiage of the purchase document. If the color requested is not available in industry standard color palettes (AMS-STD-595, Pantone, etc.) then it is the customer's responsibility to provide the appropriate color sample that is to be matched. The method of inspection as well as the RGBY tolerance limits of the color match must be acceptable to the manufacturer.

3.1.2 If no color is specified on the design data or the purchase document, then the color furnished shall be at the manufacturers option.

3.2 Properties

The product shall conform to the requirements shown in Table 1. The requirements listed in Table 1 apply to cured compound without fabric.

Table 1 - Properties

Paragraph	Property	Test Sample	Requirement	Test Method
3.2.1	As Received			
3.2.1.1	Hardness, Durometer, Type "A"	Button or plied platens	55 ± 5	ASTM D2240
3.2.1.2	Tensile Strength, minimum	ASTM platen	900 psi (6.20 MPa)	ASTM D412, Die C
3.2.1.3	Elongation, minimum	ASTM platen	350%	ASTM D412, Die C
3.2.1.4	Tear Resistance, minimum	ASTM platen	125 psi (21.9 kN/m)	ASTM D624, Die B