AEROSPACE MATERIAL SPECIFICATION

AMS3251	REV. J

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Superseding AMS3251H

Synthetic Rubber and Cork Composition General Purpose Medium

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

STABILIZED NOTICE

This document has been declared “Stabilized” by the AMS CE Elastomers Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE

1.1 Form

This specification covers a synthetic rubber and cork composition in the form of sheet, strip, and molded shapes.

1.2 Application

This product has been used typically for parts, such as packings, seals, grommets, line support blocks, and tank strap pads, where cushioning and vibration damping are of prime importance, but usage is not limited to such applications.

1.3 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 724-776-4970 (outside USA), www.sae.org.

AMS 2810 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 D 297	Rubber Products - Chemical Analysis
ASTM D 395	Rubber Property - Compression Set
ASTM D 412	Rubber Properties in Tension
ASTM D 471	Rubber Property - Effect of Liquids
ASTM D 573	Rubber - Deterioration in an Air Oven
ASTM D 2137	Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
ASTM F 36	Compressibility and Recovery of Gasket Materials
ASTM F 104	Classification System for Nonmetallic Gasket Materials

3. TECHNICAL REQUIREMENTS

3.1 Material

Shall be a granulated cork uniformly dispersed in a synthetic rubber compound, suitably cured to produce a product meeting the requirements of 3.2. Joints shall be vulcanized and the joint section shall have essentially the same strength and size as the solid section.

3.2 Properties

The product shall conform to the following requirements shown in Table 1; tests shall be performed on the product supplied and in accordance with specified ASTM methods, insofar as practicable:

TABLE 1 - PROPERTIES

Paragraph	Test	Requirement	Test Method
3.2.1	As Received		
3.2.1.1	Compressibility	45% ± 5	ASTM F 36
3.2.1.2	Elongation, minimum	100%	ASTM D 412, Die B or C
3.2.1.3	Density	0.83 to 1.05 g/cm^3	ASTM D 297
3.2.2	Aliphatic Fuel Resistance (Immediate Deteriorated Properties)		ASTM D 471 Medium: ASTM Ref. Fuel A
3.2.2.1	Compressibility Change (See 8.2)	-10 to +20%	Temperature: 68 to 86 °F (20 to 30 °C) Time: 22 hours ± 0.5
3.2.2.2	Volume Change	-5 to +25%	
3.2.2.3	Weight Change		
3.2.2.3.1	Upon removal from fuel	0 to +25%	
3.2.2.3.2	After 22 hours ± 0.5 air drying at 20 to 30 °C (68 to 86 °F), maximum (based on unimmersed weight)	-8%	

TABLE 1 - PROPERTIES

Paragraph	Test	Requirement	Test Method
3.2.3	Petroleum Lubricating Oil Resistance (Immediate Deteriorated Properties)		ASTM D 471 Medium: ASTM Oil No. 1
3.2.3.1	Compressibility Change (See 8.2)	-5% to +20%	Temperature: 212 °F ± 5 (100 °C ± 3) Time: 22 hours ± 0.5
3.2.3.2	Volume Change	-15 to +15%	
3.2.3.3	Decomposition	None	
3.2.3.4	Surface Tackiness	None	
3.2.4	Water Absorption (Immediate Deteriorated Properties)		ASTM D 471 Medium: Distilled Water
3.2.4.1	Compressibility Change (See 8.2)	0 to +15%	Temperature: 212 °F ± 5 (100 °C ± 3) Time: 1 hour ± 0.2
3.2.4.2	Volume Change	0 to +10%	
3.2.4.3	Weight Change	0 to +15%	
3.2.5	Dry Heat Resistance		ASTM D 573 Temperature: 212 °F ± 5 (100 °C ± 3) Time: 70 hours ± 0.5
3.2.5.1	Compressibility Change (See 8.2)	-15% to +5%	
3.2.5.2	Flexibility	Pass	ASTM F 104
3.2.6	Compression Set		ASTM D 395, Method B Temperature: 158 °F ± 5 (70 °C ± 3) Time: 22 hours ± 0.5
3.2.6.1	Percent of Original Deflection, maximum	80	
3.2.7	Low-Temperature Brittleness	Pass	ASTM D 2137, Method B Temperature: 31 °F ± 4 (-35 °C ± 2) Specimen to be 0.060 to 0.125 inch (1.52 to 3.18 mm) thick

3.2.8 Weathering

When specified, the product shall have weather resistance acceptable to purchaser, determined by a procedure agreed upon by purchaser and supplier.

3.2.9 Corrosion

The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service, determined by a procedure agreed upon by purchaser and vendor. Discoloration of metal shall not be considered objectionable.

3.3 Quality

The product, as received by purchaser, shall be uniform in quality and condition, smooth, as free from foreign materials as commercially practicable, and free from imperfections detrimental to usage of the product.

3.4 Tolerances

Shall be as follows:

3.4.1 Sheet and Strip

Shall be as shown in Table 2.

TABLE 2A - SHEET AND STRIP TOLERANCE, INCH/POUND UNITS

Nominal Thickness Inches	Tolerance, Inch plus and minus
Up to 0.125, incl	0.016
Over 0.125 to 0.500, incl	0.031
Over 0.500	0.047

TABLE 2B - SHEET AND STRIP TOLERANCE, SI UNITS

Nominal Thickness Millimeters	Tolerance, Millimeters plus and minus
Up to 3.18, incl	0.41
Over 3.18 to 12.70, incl	0.79
Over 12.70	1.19

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The vendor of the product shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Tests for the following requirements are acceptance tests and shall be performed on each lot as shown in Table 3:

TABLE 3 - ACCEPTANCE TEST REQUIREMENTS

Requirement	Paragraph
Compressibility, as received	3.2.1.1
Elongation, as received	3.2.1.2
Density, as received	3.2.1.3
Volume Change in Oil	3.2.3.2
Compression Set	3.2.6

4.2.2 Preproduction Tests

Tests for all technical requirements are preproduction tests and shall be performed prior to or on the initial shipment of a product to a purchaser, when a change in ingredients and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.