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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3251G

Issued NOV 1944
Revised OCT 1990
Reaffirmed APR 2001

Superseding AMS 3251F

Synthetic Rubber and Cork Composition General Purpose Medium

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:

Primarily for parts, such as packings, seals, grommets, line support blocks, and tank strap pads, where cushioning and vibration damping are of prime importance.

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 following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-7161 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS: http://www.sae.org

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

2.1.1 Aerospace Material Specifications:

AMS 2810 Identification and Packaging, Elastomeric Products

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

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; tests shall be performed on the product supplied and in accordance with specified ASTM methods, insofar as practicable:

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: Time:	20 - 30 °C (68 - 86 °F) 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 - 30 °C (68 - 86 °F), maximum (based on unimmersed weight)	-8%		
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: Time:	100 °C ± 3 (212 °F ± 5) 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: Time:	100 °C ± 3 (212 °F ± 5) 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: 100 °C ± 3 (212 °F ± 5) 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: 70 °C ± 3 (158 °F ± 5) 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: -35 °C ± 2 (-31 °F ± 4) Specimen to be 0.060 - 0.125 inch (1.52 - 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:

TABLE I

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 I (SI)

Nominal Thickness Millimetres	Tolerance, Millimetres 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 performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.

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:

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.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling and Testing:

Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient product shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall be all product from the same batch of compound processed in one continuous run and presented for vendor's inspection at one time. An inspection lot shall not exceed 500 pounds (227 kg) and may be packaged in smaller quantities and delivered under the basic lot approval provided lot identification is maintained.

4.3.1.2 A batch shall be the quantity of compound run through a mill or mixer at one time.

4.3.1.3 When a statistical sampling plan has been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5 shall state that such plan was used.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor.

4.4 Approval:

4.4.1 Sample product shall be approved by purchaser before product for production use is supplied, unless such approval be waived by purchaser. Results of tests on production product shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production product which are essentially the same as those used on the approved sample product. If necessary to make any change in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in ingredients and/or processing and, when requested, sample product. Production product made by the revised procedure shall not be shipped prior to receipt of reapproval.