



AEROSPACE MATERIAL SPECIFICATION

AMS3222™**REV. J**

Issued 1945-07
Revised 2019-07
Reaffirmed 2026-04

Superseding AMS3222H

(R) Synthetic Rubber
Hot Oil Resistant, High Swell
45 - 55

RATIONALE

This revision includes a formatting revision to the AMS3XXX series template. The technical changes to the document are removal of the "or equivalent" from hardness testing and changing the method for brittleness testing to ASTM D2137, Method C.

AMS3222J has been reaffirmed to comply with the SAE Five-Year Review policy.

A reaffirmed status is given to technical reports that have been reviewed by the technical committee and deemed to be current with no need for immediate revision. No changes have been made to this document as a result of this review.

1. SCOPE

1.1 Form

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

1.2 Application

This product has been typically used for gasket-type seals in contact with hot, petroleum-based lubricating oils where a space-filling seal operating from -40 to +212 °F (-40 to +100 °C) is required, but usage is not limited to such applications. 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.

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SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

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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
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 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 Method for Rubber Property - Effect of Liquids

ASTM D573 Standard Test Method for Rubber - Deterioration in an Air Oven

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 ANSI Accredited Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

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

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 synthetic rubber, suitably cured to produce product meeting the requirements of 3.2. Reprocessed vulcanized material is not acceptable.

3.1.1 Color

Shall be black.

3.2 Properties

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

Table 1 - Physical property requirements

Paragraph	Property	Test Sample	Requirement	Test Methods
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	1500 psi (10.3 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	Compression set Percent of Original Deflection, maximum	ASTM Platen, Plied Discs	85%	ASTM D395, Method B Temperature: 212 °F ± 2 °F (100 °C ± 1 °C) Time: 70 hours ± 0.5 hour
3.2.2	Dry Heat Resistance ASTM D573			
3.2.2.1	Hardness Change, Durometer Type "A"	BUTTON or plied platens	0 to +10	ASTM D573 Temperature: 212 °F ± 2 °F (100 °C ± 1 °C) Time: 70 hours ± 0.5 hour
3.2.2.2	Tensile Strength Change, maximum	ASTM Platen	-40%	
3.2.2.3	Elongation Change, maximum	ASTM Platen	-50%	
3.2.3	Petroleum Lubricating Oil Resistance ASTM D471 (Immediate Deteriorated Properties)			
3.2.3.1	Hardness Change, Durometer Type "A"	BUTTON or plied platens	-5 to +5	ASTM D471 Medium: IRM901 Temperature: 302 °F ± 5 °F (150 °C ± 3 °C) Time: 24 hours ± 0.2 hour
3.2.3.2	Tensile Strength Change, maximum	ASTM Platen	-50%	
3.2.3.3	Elongation Change, maximum	ASTM Platen	-50%	
3.2.3.4	Volume Change	ASTM Platen	+15 to +30%	
3.2.3.5	Decomposition	ASTM Platen	None	
3.2.3.6	Surface Tackiness	ASTM Platen	None	