

AEROSPACE MATERIAL SPECIFICATION



AMS 7265C

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Superseding AMS 7265B	

Rings, Sealing, Ethylene Propylene (EPM) Rubber
Phosphate Ester Hydraulic Fluid Resistant
75 - 85

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1. SCOPE:

1.1 Form:

This specification covers an ethylene propylene (EPM) rubber in the form of molded rings.

1.2 Application:

Sealing rings for use in phosphate-ester-base, fire-resistant, hydraulic fluids from -55° to +150°C (-67° to +302°F). Standard sizes are as shown in AS 568.

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 Aerospace Material Specifications, Aerospace Standards, and Aerospace Information Reports shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications:

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

2.1.1 Aerospace Material Specifications:

AMS 2350 Standards and Test Methods
AMS 2406 Chromium Plating, Hard Deposit
AMS 2817 Packaging and Identification, Preformed Packings
AMS 6440 Steel Bars, Forgings, and Tubing, 1.45Cr (0.98 - 1.10C) (SAE 52100), for Bearing Applications

2.1.2 Aerospace Standards:

AS568 Aerospace Size Standard for O-Rings
AS871 Manufacturing and Inspection Standards for Preformed Packings (O-Rings)
AS1241 Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft

2.1.3 Aerospace Information Reports:

AIR 851 O-Ring Tension Testing Calculations

2.2 ASTM Publications:

Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D1414 Testing Rubber O-Rings

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be a compound, based on an ethylene propylene (EPM) elastomer, suitably cured to produce sealing rings meeting the requirements of 3.2.

3.2 Properties:

Rings shall conform to the following requirements; tests shall be performed on the rings supplied and, except as otherwise specified herein, in accordance with ASTM D1414, insofar as practicable. Testing for tensile strength and tensile stress is not required on rings which are too small to permit assembly on rollers and are, after cutting, too short to permit testing as a single strand. Eliminating testing for tensile strength and tensile stress does not eliminate testing for elongation; elongation test can be made by stretching a ring over a mandrel of a size which will stretch the ring sufficiently to produce the required elongation when figured on the ID of the ring. Calculations of tensile strength, elongation, and tensile stress may be made in accordance with AIR 851.

3.2.1 As Received:

3.2.1.1	Hardness, Durometer "A" or equiv.	80 ± 5
3.2.1.2	Tensile Strength, minimum	1400 psi (9.65 MPa)
3.2.1.3	Elongation, minimum	125%
3.2.1.4	Tensile Stress at 100% Elongation, minimum	800 psi (5.52 MPa)
3.2.1.5	Corrosion	Nil
3.2.1.6	Specific Gravity	Preproduction Value ±0.02
3.2.2	Fluid Resistance: (Immediate Deteriorated Properties)	Medium: AS1241, Type IV, Class 1 or Class 2

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3.2.2.1	Hardness Change, Durometer "A" or equiv.	-15 to 0	Temperature:	120°C ± 3 (248°F ± 5)
			Time:	70 hr ± 0.5
3.2.2.2	Tensile Strength Change, maximum	-15%		
3.2.2.3	Elongation Change, maximum	-10%		
3.2.2.4	Volume Change	0 to +15%		
3.2.3	Dry Heat Resistance:		Temperature:	150°C ± 3 (302°F ± 5)
3.2.3.1	Hardness Change, Durometer "A" or equiv.	0 to +10	Time:	70 hr ± 0.5
3.2.3.2	Tensile Strength Change, maximum	-25%		
3.2.3.3	Elongation Change, maximum	-10%		
3.2.3.4	Bend (Flat)	No cracking or checking		
3.2.4	Compression Set:		Temperature:	100°C ± 1 (212°F ± 2)
	Percent of Original Deflection, maximum	30	Time:	70 hr ± 0.5
3.2.5	Low-Temperature Resistance:			
3.2.5.1	Temperature Retraction, TR ₁₀ point, maximum	-45°C (-49°F)		
3.2.6	Performance:	Pass	4.5.1	
3.2.7	Endurance:	Pass	4.5.2	
3.2.8	Fatigue:	Pass	4.5.3	
3.2.9	Chew Resistance:	Pass	4.5.4	

3.3 Quality:

Rings, as received by purchaser, shall be uniform in quality and condition, smooth, as free from foreign material as commercially practicable, and free from imperfections detrimental to their performance. Surface imperfections shall be no greater than permitted by AS871 for minor defects.

3.4 Sizes and Tolerances:

Shall be as specified on the drawing. Inspection for conformance to dimensional requirements shall be made in accordance with AS871.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of rings shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the rings conform to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to the following requirements are classified as acceptance tests and shall be performed on each lot:

Requirement	Reference Paragraph
Hardness, as received	3.2.1.1
Tensile Strength, as received	3.2.1.2
Elongation, as received	3.2.1.3
Tensile Stress, as received	3.2.1.4
Specific Gravity, as received	3.2.1.6
Volume Change in hydraulic fluid	3.2.2.4
Compression Set	3.2.4

4.2.2 Periodic Tests: Tests to determine conformance to the following requirements are classified as periodic tests and shall be performed at a frequency selected by the vendor but not exceeding six months unless frequency of testing is specified by purchaser.