AEROSPACE
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AMS 7263B

Superseding AMS 7263A

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RINGS, PACKING, SYNTHETIC RUBBER
Phosphate Ester Hydraulic Fluid Resistant, Butyl Type
85 - 95

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. FORM: Molded rings.

3. APPLICATION: Packing rings for use as static seals in phosphate ester base fire resistant hydraulic fluids at temperatures as low as -55 C (-67 F).

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.

4.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable. Tensile strength testing is not required on rings which are too small to permit assembly on rollers for testing and are, after cutting, too short to permit testing as a single strand. Eliminating tensile testing 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.

4.2.1 As Received:

4.2.1.1	Hardness, Durometer "A" or equiv.	85 - 95	
4.2.1.2	Tensile Strength, psi, min	1000	See 4.2.1.5
4.2.1.3	Elongation, %, min	150	See 4.2.1.5
4.2.1.4	Tensile Stress at 100% Elongation, psi, min	600	See 4.2.1.5 and 4.2.1.6

4.2.1.5 Use ASTM D1414 for "O" rings; use ASTM D412 for other rings.

4.2.1.6 Stretch specimen three times to 100% elongation prior to conducting the test.

4.2.2	Phosphate Ester Fluid Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: SAE Phosphate Ester Standard Test Fluid No. 1A (See Note 1) Temperature: 70 C ± 1 (158 F ± 1.8) Time: 168 hr
4.2.2.1	Hardness Change, Durometer "A" or equiv.	-15 to 0	
4.2.2.2	Tensile Strength Change, %, max (based on area before immersion)	-25	

4.2.2.3	Elongation Change, %, max	-20	
4.2.2.4	Volume Change, %	0 to +10	
4.2.2.5	Decomposition	None	
4.2.2.6	Surface Tackiness	None	

4.2.2.7 If impracticable to determine tensile strength of rings 0.5 in. and less nominal ID after oil immersion, the rings shall withstand, without cracking, closing flat.

Note 1. SAE Phosphate Ester Standard Test Fluid No. 1A is a standardized batch of test fluid which has been set aside by the manufacturer for use in AMS tests. It may be obtained for test purposes from:

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New York, New York 10017

4.2.3 Dry Heat Resistance: ASTM D573

4.2.3.1	Hardness Change, Durometer "A" or equiv.	0 to +10	Temperature: 70 C ± 1 (158 F ± 1.8) Time: 168 hr
4.2.3.2	Tensile Strength Change, %, max	-20	
4.2.3.3	Elongation Change, %, max	-35	
4.2.3.4	Bend (flat)	No cracking or checking	

4.2.4 Compression Set: ASTM D395, Method B

4.2.4.1	Per cent of original deflection, max	50	Temperature: 70 C ± 1 (158 F ± 1.8) Time: 22 hr
4.2.4.2	Per cent of original thickness, max	13	See 4.2.4.3 and 4.2.4.4

4.2.4.3 The values are applicable to rings having a nominal cross sectional diameter of 0.139 in. and larger.

4.2.4.4 Rings over 2 in. nominal ID may be cut for testing. The cut specimen shall be not less than 1 in. in length.

4.2.5 Low Temperature Brittleness: No cracking See 4.2.5.1

4.2.5.1 The specimen for rings 2 in. and less nominal ID shall be a complete ring; the specimen for rings over 2 in. nominal ID shall be a piece 3 in. long cut from a ring. The specimen shall be aged in SAE Phosphate Ester Test Fluid No. 1A for 72 hr at 70 C ± 1 (158 F ± 1.8), cooled in an unstressed position to -55 C ± 1 (-67 F ± 1.8), and held at that temperature for 5 hours. At the end of the refrigeration time, the specimen shall be bent as follows: The complete ring specimen shall be ovalized until the minor axis is equal to 50% of the original ID; the 3 in. specimen shall be bent around to form a circle.

5. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from imperfections detrimental to fabrication, appearance, or performance of parts.