AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 7267A

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RINGS, SEALING, SILICONE RUBBER
Heat Resistant, Low Compression Set
(70 - 80)

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: Sealing rings for use at temperatures from -85 F (-65 C) +500 F (+260 C) in contact with air. Not suitable for use at the higher temperatures in lubricating oil systems. The cross-section of such rings is usually not over 3/16 in. in diameter or thickness.

4. TECHNICAL REQUIREMENTS:

4.1 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, except for the tests of 4.2.1.4 and 4.2.4, and in accordance with listed ASTM methods insofar as practicable. Ø 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. The tests of 4.2.1.4 and 4.2.6 are not required for routine control.

4.2.1 As Received:

4.2.1.1	Hardness, Durometer "A" or equiv.	75 ± 5	
Ø 4.2.1.2	Tensile Strength, psi, min	650	See 4.2.1.6
Ø 4.2.1.3	Elongation, %, min	125	See 4.2.1.6
4.2.1.4	Compression-Deflection, at 20% deflection, psi, min		See 4.2.1.7
	At 70 - 85 F (21.1 - 29.4 C)	200	
	At 500 F (260 C)	150	
4.2.1.5	Specific Gravity, variation from sample submitted for approval, max	± 0.05	

Ø 4.2.1.6 Use ASTM D1414-56T for "O" rings; use ASTM D412-61T for other rings.

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4.2.1.7 Test in accordance with ASTM D575-46, Method A, except using a compression rate of 0.1 in. per min. and omitting buffing of the surfaces. Specimens shall be discs cut from molded slabs stacked to 0.500 in. ± 0.010 thickness. For tests at 500 F (260 C), the compression apparatus shall be surrounded by a suitable heater and the specimen and test fixture stabilized at test temperature for 1 hr before applying the load.

4.2.2 Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-59T	
		Medium:	ASTM Oil No. 1
		Temperature:	350 F ± 2 (176.7 C ± 0.6)
4.2.2.1 Hardness Change, Durometer "A" or equiv.	-10 to +5	Time:	70 hr
4.2.2.2 Tensile Strength Change, %, max (based on area before immersion)	-30		
4.2.2.3 Elongation Change, %, max	-30		
4.2.2.4 Volume Change (Method A), %	0 to +15		
4.2.3 Dry Heat Resistance:		ASTM D573-53	
		Temperature:	500 F ± 5 (260 C ± 2.8)
4.2.3.1 Hardness Change, Durometer "A" or equiv.	-5 to +10	Time:	70 hr
4.2.3.2 Tensile Strength Change, %, max	-35		
4.2.3.3 Elongation Change, %, max	-55		
4.2.3.4 Surface Hardening	None		
4.2.3.5 Bend (flat)	No cracking or checking		
4.2.4 Polymer Reversion:		See 4.2.4.2	
4.2.4.1 Hardness Change, Durometer "A" or equiv., max	-15		

4.2.4.2 Specimen shall be discs 1.129 in. ± 0.005 in diameter stacked to a total thickness of 0.500 - 0.550 inch. Hardness of the stacked discs shall be measured and the specimen placed in the cup of the test fixture (See Fig. 1). The fixture shall be assembled and the screw cap tightened to 25 lb-in. torque. The fixture shall be placed in an oven at 500 F ± 5 (260 C ± 2.8) for 6 hr, removed, cooled to room temperature in not less than 2 hr, and disassembled. Test specimen shall be removed and hardness again determined.

4.2.5 Compression Set: ASTM D395-61, Method B
Temperature: 450 F ± 5 (232.2 C ± 2.8)
Time: 22 hr
See 4.2.5.3

4.2.5.1 Percent of Original Deflection, max	
Ring Cross Section Diameter, Inch	
0.066 to 0.110, incl	75
Over 0.0110	65
4.2.5.2 Percent of Original Thickness, max	
Ring Cross Section Diameter, Inch	
0.066 to 0.110	18
Over 0.0110	16

4.2.5.3 Compression set shall be determined on complete rings if the ID of the ring is 2 in. or less; for larger rings, a section approximately 1 in. long cut from the ring shall be used.

4.2.6 Low Temperature Resistance: ASTM D1329-60, modified for testing specimens from rings.

4.2.6.1 Temperature Retraction, TR_{10} point, deg Fahr, max	-45 (-42.8 C)

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.

6. REPORTS: Unless otherwise specified, the vendor shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, batch number unless waived by purchaser, part number, and quantity.

7. PACKAGING AND MARKING: Unless otherwise ordered, rings shall be packaged and identified as follows:

7.1 Individual rings shall be packaged and identified in accordance with the latest issue of AMS 2817, except that cure date is not required.

7.2 Sheets or strips of individual ring packages shall be packed in cartons in such a manner that the rings, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weather or any normal hazard. Each carton shall be marked to give the following information:

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PART NUMBER _____
PURCHASE ORDER NUMBER _____
QUANTITY _____
COMPOUND NUMBER _____
BATCH NUMBER (Unless waived by purchaser) _____
MANUFACTURER'S IDENTIFICATION _____
DATE OF SHIPMENT _____

8. APPROVAL:

8.1 To assure adequate performance characteristics, compound shall be approved by purchaser before rings for production use are supplied, unless such approval be waived. Results of tests on production rings shall be essentially equivalent to those on the approved sample.

8.2 Vendor shall use the same compound and manufacturing processes for production rings as for approved sample rings. If necessary to make any change in mold, compound, or processing which could unfavorably affect any characteristics of the rings, vendor shall obtain written permission from purchaser prior to incorporating such change.

9. REJECTIONS: Parts not conforming to this specification or to authorized modifications will be subject to rejection.