Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

AEROSPACE MATERIAL SPECIFICATION

AMS 7280

Issued 5-1-70
Revised

RINGS, SEALING, SYNTHETIC RUBBER
High Temperature Fluid Resistant, Low Compression Set
FPM Type
70 - 80

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

2. FORM: Molded rings.

3. APPLICATION: Sealing rings for use in contact with air or a variety of fuels, lubricants, and hydraulic fluids at temperatures up to 260 C (500 F). Rings may be suitable for use at temperatures appreciably lower than the brittleness point as determined by common tests. The cross section of such rings is usually not over 3/16 in. in diameter or thickness. Standard sizes are as shown in ARP 568.

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 and, except as otherwise specified, in accordance with the issue of ASTM D1414 specified 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. The tests of 4.2.6 and 4.2.7 are not required for routine control.

4.2.1 As Received:

4.2.1.1 Hardness, Durometer "A" or equiv.		75 ± 5
4.2.1.2 Tensile Strength, psi, min		
Ring Diameters, Inches		
Cross Section	ID	
Up to 0.090, incl	All	1400
Over 0.090 to 0.110, incl	Up to 1.000, excl	1400
Over 0.090 to 0.110, incl	1.000 and over	1600
Over 0.110	All	1600
4.2.1.3 Elongation, %, min		125
4.2.1.4 Specific Gravity, variation from sample submitted for approval, max		±0.02

4.2.2 Aromatic Fuel Resistance: (Immediate Deteriorated Properties)
Medium: ASTM Ref. Fuel B
Temperature: 20 - 30 C (68 - 86 F)
Time: 70 hr

4.2.2.1 Hardness Change, Durometer "A" or equiv.	-5 to +5

4.2.2.2	Tensile Strength Change, %, max	-15		
4.2.2.3	Elongation Change, %, max	-15		
4.2.2.4	Volume Change, %	0 to +10		
4.2.3	Synthetic Lubricant Resistance: (Immediate Deteriorated Properties)		Medium:	SAE Ester Test Fluid No. 2 (See Note 1)
4.2.3.1	Hardness Change, Durometer "A" or equiv.	-15 to +5	Temperature:	200 C ± 3 (392 F ± 5.4)
			Time:	70 hr
4.2.3.2	Tensile Strength Change, %, max (based on area before immersion)	-40		
4.2.3.3	Elongation Change, %, max	-20		
4.2.3.4	Volume Change, %	0 to +25		
4.2.4	Dry Heat Resistance:		Temperature:	250 C ± 3 (482 F ± 5.4)
4.2.4.1	Hardness Change, Durometer "A" or equiv.	0 to +10	Time:	70 hr
4.2.4.2	Tensile Strength Change, %, max	-20		
4.2.4.3	Elongation Change, %, max	-20		
4.2.4.4	Weight Loss, %, max	5.0		
4.2.4.5	Bend (flat)	No cracking or checking		
4.2.5	Compression Set:		Temperature:	200 C ± 3 (392 F ± 5.4)
4.2.5.1	Percent of Original Deflection, max		Time:	70 hr
	Ring Cross Section Diameter, Inch			
	0.066 - 0.110, incl	35		
	Over 0.110	30		
4.2.6	Long Time Compression Set:		Temperature:	200 C ± 3 (392 F ± 5.4)
4.2.6.1	Percent of Original Deflection, max		Time:	336 hr
	Ring Cross Section Diameter, Inch			
	0.066 - 0.110, incl	60		
	Over 0.110	55		
4.2.7	Low Temperature Resistance:			
4.2.7.1	Temperature Retraction, TR_{10} point, max	-15 C (+5 F)		

Note 1. SAE Ester Test Fluid No. 2 may be ordered as Stauffer Blend No. 7700 from:

Stauffer Chemical Company
Special Chemical Division
380 Madison Avenue
New York, New York 10017