

# AEROSPACE MATERIAL SPECIFICATION

Issued NOV 1969  
Revised OCT 1994  
Reaffirmed OCT 2001

Superseding AMS 7268B

## Rings, Sealing, Silicone Rubber Low Compression Set, Non-Oil Resistant 65 - 75

### 1. SCOPE:

#### 1.1 Form:

This specification covers a low-compression-set, non-oil-resistant silicone rubber in the form of molded rings.

#### 1.2 Application:

These rings have been used typically for sealing rings in contact with air from -55 to +200 °C (-67 to +392 °F), but usage is not limited to such applications. These rings are not intended for service involving exposure to petroleum products and are not required to be tested for compatibility with such products.

#### 1.2.1 These rings have excellent resistance to compression set at the expense of tensile strength, elongation, and tear resistance and are resistant to deterioration by ozone, smog, and weathering.

#### 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 SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

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

Copyright 2001 Society of Automotive Engineers, Inc.  
All rights reserved.

Printed in U.S.A.

QUESTIONS REGARDING THIS DOCUMENT:  
TO PLACE A DOCUMENT ORDER:  
SAE WEB ADDRESS:

(724) 772-7161  
(724) 776-4970  
<http://www.sae.org>

FAX: (724) 776-0243  
FAX: (724) 776-0790

## 2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2817 Packaging and Identification, Preformed Packings

AS568 Aerospace Size Standard for O-Rings

AS871 Manufacturing and Inspection Standards for Preformed Packings (O-Rings)

AIR851 O-Ring Tension Testing Calculations

## 2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM D 624 Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer

ASTM D 1414 Rubber O-Rings

ASTM D 3182 Rubber - Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets

## 3. TECHNICAL REQUIREMENTS:

### 3.1 Material:

Shall be a compound, based on a silicone elastomer, suitably cured to produce sealing rings meeting the requirements of 3.2.

### 3.2 Properties:

Rings shall conform to requirements shown in Table 1, except as otherwise specified herein. For tension testing rings smaller than can be tested using 1/2 inch (12.7 mm) diameter rotating spools, spools of reduced diameter, in 1/8 inch (3.2 mm) increments, shall be used. Spool mounts shall be rotated 180 degrees relative to each other when necessary to allow closing to the unelongated length of the ring (See AIR851).

TABLE 1 - Properties

Paragraph	Property	Requirement	Test Method
3.2.1	Hardness, Durometer "A" or equivalent	70 ± 5	ASTM D 1414, or ASTM D 3182 when permitted by purchaser
3.2.2	Tensile Strength, min	800 psi (5.52 MPa)	ASTM D 1414
3.2.3	Elongation, min	125%	ASTM D 1414
3.2.4	Tear Resistance, min	50 pounds force/inch (8756 N/m)	ASTM D 624 on specimens cut with Die B from ASTM D 3182
3.2.5	Specific Gravity	Preproduction Value ±0.03	ASTM D 1414
3.2.6	Dry Heat Resistance:		ASTM D 1414 225 °C ± 3 (437 °F ± 5) 70 hours ± 0.5
3.2.6.1	Hardness Change, Durometer "A" or equivalent	-10 to + 10	
3.2.6.2	Tensile Strength Change, max	-20%	
3.2.6.3	Elongation Change, max	-35%	
3.2.7	Compression Set		ASTM D 1414 175 °C ± 3 (347 °F ± 5) 22 hours ± 0.25
	Percent of Original Deflection, max		
	Ring Cross Section Diameter		
	0.066 to 0.110 inch (1.68 to 2.79 mm), incl	25	
	Over 0.110 inch (2.79 mm)	20	
3.2.8	Low-Temperature Resistance:		ASTM D 1414
	Temperature Retraction		
	TR <sub>10</sub> point, max	-42 °C (-44 °F)	

### 3.3 QUALITY:

Rings, as received by purchaser, shall be uniform in quality and condition, smooth, and free from chalky spots, as free from foreign materials as commercially practicable, and free from imperfections detrimental to usage of the rings. Surface imperfections shall be no greater than permitted by AS871.

### 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. Standard sizes are as shown in AS568.

## 4. QUALITY ASSURANCE PROVISIONS:

### 4.1 Responsibility for Inspection:

The manufacturer of rings shall supply all samples for required tests and shall be responsible for all required tests. 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 for requirements shown in Table 2 are acceptance tests and shall be performed on each lot:

TABLE 2 - Acceptance Tests

Requirement	Paragraph Reference
Hardness, as received	3.2.1
Tensile Strength, as received	3.2.2
Elongation, as received	3.2.3
Specific Gravity, as received	3.2.5
Compression Set	3.2.7

4.2.2 Preproduction Tests: Tests for all technical requirements are preproduction tests and shall be performed prior to or on the first-article shipment of rings by a manufacturer, when a change in ingredients and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

### 4.3 Sampling and Testing:

Shall be as follows: