

# AERONAUTICAL MATERIAL SPECIFICATIONS

## AMS 3326

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

Issued 6-15-59  
Revised

### SILICONE RUBBER Fuel and Oil Resistant (50 - 65)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Molded or extruded shapes, sheet, strip, or as ordered.
3. **APPLICATION:** Primarily for rubber-like parts requiring continuous operation in aromatic fuels and di-ester lubricants at temperatures from -80 to +300 F.
4. **TECHNICAL REQUIREMENTS:**
  - 4.1 **General:**
    - 4.1.1 **Condition:** Unless otherwise specified, a suitably cured product shall be furnished.
    - 4.1.2 **Weathering:** When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
    - 4.1.3 **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 **Physical Properties:** The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed ASTM methods, insofar as practicable.
      - 4.2.1 **As Received:**

4.2.1.1	Hardness, Durometer "A" or equiv.	50 - 65	
4.2.1.2	Tensile Strength, psi, min	800	ASTM D412-51T, Die B or C
4.2.1.3	Elongation, %, min	130	ASTM D412-51T, Die B or C
4.2.1.4	Tensile Stress at 50% Elongation, psi	See Note 1	ASTM D412, 51T, Die B or C
4.2.1.5	Tear Resistance, lb per in., min	40	ASTM D624-54, Die B
4.2.1.6	Specific Gravity	See Note 2	ASTM D297-55T
      - 4.2.2 **Di-Ester Oil Resistance:**

(Immediate Deteriorated Properties)

4.2.2.1	Hardness Change, Durometer "A" or equiv., max	-10	ASTM D471-57T Medium: Di-2-ethylhexyl sebacate + 1/2% phenothiazine Temperature: 300 F + 5 Time: 48 hr
4.2.2.2	Volume Change, %, max	+20	

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4.2.3 Fuel Resistance:  
(Immediate Deteriorated Properties)

ASTM D471-57T  
Medium: ASTM Ref. Fuel B  
Temperature: 70 - 85 F  
Time: 48 hr

- 4.2.3.1 Hardness Change, Durometer "A" or equiv. -10
- 4.2.3.2 Tensile Strength Change, %, max -60
- 4.2.3.3 Elongation Change, %, max -50
- 4.2.3.4 Volume Change, %, max
- 4.2.3.4.1 For molded O-rings +25
- 4.2.3.4.2 For other forms +30

4.2.4 Dry Heat Resistance:

ASTM D573-53  
Temperature: 450 F  $\pm$  5  
Time: 24 hr

- 4.2.4.1 Hardness Change, Durometer "A" or equiv. -5 to +5
- 4.2.4.2 Tensile Strength Change, %, max -25
- 4.2.4.3 Elongation Change, %, max -15
- 4.2.4.4 Surface Hardening None

4.2.5 Compression Set:

ASTM D395-55, Method B  
Temperature: 300 F  $\pm$  5  
Time: 70 hr  
Compressed to 70% of original thickness

- 4.2.5.1 Percent of original deflection, max 45
- 4.2.5.2 Percent of original thickness, max 14

4.2.6 Low Temperature Resistance:

ASTM D746-57T, Procedure B  
Temperature: -80 F  $\pm$  2

- 4.2.6.1 Brittleness Pass

Note 1. Value to be reported. Specimens shall be prestretched to 60% elongation twice within 5 min. of test.

Note 2. Value to be reported. Production material shall be within  $\pm$  0.05 of the value agreed upon by purchaser and vendor.

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. TOLERANCES: Unless otherwise specified, the following tolerances apply:

6.1 Sheet and Strip:

Nominal Thickness Inches	Tolerance, Inch Plus and Minus
1/8 and under	1/64
Over 1/8 to 1/2, incl	1/32
Over 1/2	3/64

6.2 Tubing:

6.2.1	Nominal OD or ID (not both), Inches	Tolerance Plus and Minus	Ovality, % (See Note 3)
	1/2 and under	0.020 in.	10
	Over 1/2 to 1, incl	0.030 in.	15
	Over 1	4%	15

Note 3. Ovality applies to tubing ordered in straight lengths with wall thickness of 1/16 in. and over, and shall be computed from the difference of the minor and major axis diameter measurements, taken at the same location on the tube, expressed as a percentage of the nominal diameter.

6.2.2	Nominal Wall Thickness Inch	Tolerance Plus and Minus
	Under 1/16	0.005 in.
	1/16 and over	10%

7. REPORTS:

7.1 Unless otherwise specified, the vendor of the product 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, form or part number, and quantity.

7.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report the compound number and a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

8. IDENTIFICATION: Unless otherwise specified, all material shall be identified in accordance with the latest issue of AMS 2810, except cure date is not required.