



# AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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## AMS 3327

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Revised

### SILICONE RUBBER High Temperature Fuel and Oil Resistant 70 - 80

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. FORM: Sheet, strip, tubing, molded shapes, or as ordered.
3. APPLICATION: Primarily for rubber-like parts requiring continuous operation in aromatic fuels at temperatures from -55 to +175 C (-67 to +347 F) and in lubricating oils at temperatures from -55 to +150 C (-67 to +302 F).
4. TECHNICAL REQUIREMENTS:
  - 4.1 General:
    - 4.1.1 Condition: Unless otherwise specified, a suitably cured product shall be furnished.
    - 4.1.2 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.
      - 4.2.1 As Received:
 

4.2.1.1 Hardness, Durometer "A" or equiv.	75 ± 5	ASTM D2240
4.2.1.2 Tensile Strength, psi, min	800	ASTM D412, Die B or C
4.2.1.3 Elongation, %, min	100	ASTM D412, Die B or C
4.2.1.4 Tensile Stress at 100% Elongation, psi	700 - 1000	ASTM D412, Die B or C
4.2.1.5 Specific Gravity, variation from sample submitted for approval, max	±0.03	ASTM D297
      - 4.2.2 Fuel Resistance:  
(Immediate Deteriorated Properties)
 

		ASTM D471
		Medium: ASTM Ref. Fuel B
		Temperature: 20 - 30 C (68 - 86 F)
4.2.2.1 Hardness Change, Durometer "A" or equiv., max	-15 to 0	Time: 70 hr
4.2.2.2 Tensile Strength Change, %, max	-30	
4.2.2.3 Elongation Change, %, max	-25	
4.2.2.4 Volume Change, %	0 to +20	

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4.2.3	<u>Di-Ester Oil Resistance:</u> (Immediate Deteriorated Properties)		ASTM D471
4.2.3.1	Hardness Change, Durometer "A" or equiv., max	-10	Medium: SAE Ester Test Fluid No. 2 (See Note 1)
4.2.3.2	Tensile Strength Change, %, max (based on area before immersion)	-20	Temperature: 150 C $\pm$ 3 (302 F $\pm$ 5.4)
4.2.3.3	Elongation Change, %, max	-25	Time: 70 hr
4.2.3.4	Volume Change, %	0 to +12	
4.2.4	<u>Dry Heat Resistance:</u>		ASTM D573
4.2.4.1	Hardness Change, Durometer "A" or equiv.	0 to +10	Temperature: 200 C $\pm$ 3 (392 F $\pm$ 5.4)
4.2.4.2	Tensile Strength Change, %, max	-15	Time: 70 hr
4.2.4.3	Elongation Change, %, max	-30	
4.2.4.4	Bend (flat)	No cracking or checking	
4.2.5	<u>Compression Set:</u>		ASTM D395, Method B
4.2.5.1	Percent of original deflection, max	40	Temperature: 175 C $\pm$ 3 (347 F $\pm$ 5.4)
4.2.5.2	Percent of original thickness, max	10	Time: 22 hr
4.2.6	<u>Low Temperature Brittleness:</u>	Pass	ASTM D746, Procedure B
			Temperature: -55 C $\pm$ 3 (-67 F $\pm$ 5.4)
			Time: 10 min.

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

5. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from chalky spots and 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
Up to 1/8, incl	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 2)
	Up to 1/2, incl	0.020 in.	10
	Over 1/2 to 1,	0.030 in.	15
	Over 1	4%	15

Note 2. 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 transverse plane on the tube, expressed as a percentage of the nominal diameter.

6.2.2	Nominal Wall Thickness Inches	Tolerance Plus and Minus
	Up to 1/16, excl 1/16 and over	0.005 in. 10%

7. REPORTS:

7.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report showing the results of tests made on the product to determine conformance to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, batch 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 or other direct supplier of material, supplier's compound number, 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 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.

9. PACKAGING AND MARKING:

9.1 Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weather or any normal hazard.

9.2 Each package shall be permanently and legibly marked in accordance with the latest issue of AMS 2810 except cure date is not required.

10. APPROVAL:

10.1 Sample material shall be approved by purchaser before material for production use is supplied, unless such approval be waived. Results of tests on production material shall be essentially equivalent to those on the approved sample.