

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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SILICONE RUBBER General Purpose (35-45)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Molded or extruded shapes, sheet, tubing, or as ordered.
3. APPLICATION: Primarily for soft rubber-like parts required to operate or seal at temperatures from -65 to +400 F. Silicone rubber is resistant to deterioration by weathering and engine oil, and remains flexible over the temperature range noted. This material is not normally suitable for use in contact with fuels due to excessive swelling of the elastomer.
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 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:

	Property	Value	Test Method
4.2.1	<u>As Received</u> :		
	Hardness, Durometer "A" or equiv.	40 + 5	
	Tensile Strength, psi, min	500	ASTM D412-49T, Die B
	Elongation, %, min	250	ASTM D412-49T, Die B
	Tear Resistance, lb per in., min	55	ASTM D624-48, Die B

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Property	Value	Test Method
4.2.2 Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-49T
Hardness Change, Durometer "A" or equiv.	-15 to +5	
Tensile Strength Reduction, %, max (Based on area before immersion)	50	
Elongation Reduction, %, max	50	Medium: ASTM Oil No. 1
Volume Change (Method A), %	0 to +10	Temperature: 350 F + 2
Decomposition	None	Time: 70 hr
Surface Tackiness	None	
4.2.3 Dry Heat Resistance:		ASTM D573-48
Hardness Change, Durometer "A" or equiv.	0 to +10	
Tensile Strength Reduction, %, max	5	Temperature: 450 F + 2
Elongation Reduction, %, max	25	Time: 24 hr
Surface Hardening	None	
Bend (flat)	No cracking or checking	
4.2.4 Compression Set:		ASTM D395-49T, Method B
Per cent of Original Deflection, max	72	Temperature: 350 F + 2
		Time: 22 hr
Per cent of Original Thickness, max	29	Compressed to 60% of Original Thickness
4.2.5 Low Temperature Brittleness:	Pass	ASTM D736-46T
		Temperature: -85 F + 2
		Time: 5 hr

Note 1. To be used only until satisfactory replacement test and values are established.

5. **QUALITY:** The product shall be uniform in quality and condition, clean, smooth, and free from chalky spots, foreign materials and defects detrimental to fabrication, appearance, or performance of parts.

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

6.1 **Sheet:**

Nominal Thickness Inch	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 * Inch	Tolerance, Inch Plus and Minus	Ovality (Note 2)
	1/2 and under	0.020	10%
	Over 1/2 to 1, incl	0.030	15%
	Over 1	4%	15%

* Not Both

Note 2. Ovality applies to tubing with wall thickness of 1/16 inch 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 meets 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, contractor or 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 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 and marked in accordance with the latest issue of AMS 2810.

9. PACKAGING:

- 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 due to weathering or any normal hazard.