AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3301 B

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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 -80 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 gasoline or aromatic fuels and low aniline point petroleum base fluids 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 cause for rejection.

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 As Received:		
4.2.1.1 Hardness, Durometer "A" or equiv.	40 ± 5	
4.2.1.2 Tensile Strength, psi, min	500	ASTM D412-49T, Die B or C
4.2.1.3 Elongation, %, min	250	ASTM D412-49T, Die B or C
4.2.1.4 Tear Resistance, lb per in., min	55	ASTM D624-48, Die B

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Property	Value	Test Method
ø 4.2.2 Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-51T
4.2.2.1 Hardness Change, Durometer "A" or equiv.	-15 to +5	Medium: ASTM Oil No. 1 Temperature: 350 F ± 2 Time: 70 hr
4.2.2.2 Tensile Strength Reduction, %, max (based on area before immersion)	50	
4.2.2.3 Elongation Reduction, %, max	50	
4.2.2.4 Volume Change (Method A), %	0 to +15	
4.2.2.5 Decomposition	None	
4.2.2.6 Surface Tackiness	None	
ø 4.2.3 Dry Heat Resistance:		ASTM D573-48
4.2.3.1 Hardness Change, Durometer "A" or equiv.	0 to +10	Temperature: 450 F ± 2 Time: 24 hr
4.2.3.2 Tensile Strength Reduction, %, max	15	
4.2.3.3 Elongation Reduction, %, max	25	
4.2.3.4 Surface Hardening	None	
4.2.3.5 Bend (flat)	No cracking or checking	
4.2.4 Compression Set:		ASTM D395-49T, Method B
4.2.4.1 Percent of Original Deflection, max	72	Temperature: 350 F ± 2 Time: 22 hr
4.2.4.2 Percent of Original Thickness, max	29	Compressed to 60% of Original Thickness
4.2.5 Low Temperature Brittleness:	Pass	ASTM D736-46T (See Note 1) Temperature: -85F ± 2 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 Extrusions: Extrusion tolerances shall be as shown on the extrusion drawing.

6.3 Tubing:

6.3.1

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

ø Note 2. Ovality applies to tubing ordered in straight lengths with wall thickness of 1/16 in. or over, and shall be defined as the difference between the lengths of the major and minor axes of any one cross section of the tube, expressed as a percentage of the nominal diameter.

6.3.2

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, material specification 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.