

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3304

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Revised

SILICONE RUBBER Heat and Weather Resistant (65-75)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number 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; however, the fuel resistance and tear resistance are low.
4. **TECHNICAL REQUIREMENTS:**
 - 4.1 **General:**
 - 4.1.1 **Condition:** Unless otherwise specified, a fully 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 or other deleterious effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.
 - 4.2 **Properties:** Unless otherwise specified, 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:		
	Hardness, Durometer "A" or equiv.	70 $\pm$ 5	
	Tensile Strength, psi, min	500	ASTM D412-41 Die B
	Elongation, %, min	80	
4.2.2	Lubricating Oil Resistance:		ASTM D471-46T
	(Immediate Deteriorated Properties)		
	Hardness Change, Durometer "A" or equiv.	-12 to +5	
	Tensile Strength Reduction, %, max (based on area before immersion)	20	Medium: ASTM Oil No.1 Temperature: 350 F $\pm$ 2
	Elongation Reduction, %, max	20	Time: 70 hr
	Volume Change (Method A), %	0 to +10	
	Decomposition	None	
	Surface Tackiness	None	
	Low Temperature Brittleness	Pass	same as 4.2.6 below

4.2.3 Water Resistance:

(Immediate Deteriorated Properties)
Weight Increase, %, max

1.6

ASTM D471-46T

Medium: Distilled Water
Temperature: 77 F $\pm$ 2
Time: 168 hr

4.2.4 Dry Heat Resistance:

Hardness Change, Durometer "A" or
equiv.

0 to +10

Tensile Strength Reduction, %, max

15

Elongation Reduction, %, max

50

Surface Hardening

None

Bend (flat)

No cracks

ASTM D865-47T

Temperature: 450 F $\pm$ 5
Time: 4 hr

4.2.5 Compression Set:

Per cent of Original Deflection, max

70

Per cent of Original Thickness, max

18

ASTM D395-46T Method B

Temperature: 350 F $\pm$ 5

Time: 24 hr

Compressed to 75% of original
thickness, test specimens
stacked to $\frac{1}{8}$ in. thick

4.2.6 Low Temperature Brittleness:

Pass

ASTM D736-46T

Temperature: -70 F $\pm$ 2

Time: 5 hr

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 Molded Sheets:

Nominal Thickness
Inch

Tolerance, Inch
Plus and Minus

$\frac{1}{8}$ and less
Over $\frac{1}{8}$ to $\frac{1}{2}$, incl
Over $\frac{1}{2}$

1/64

1/32

3/64

6.2 Molded Tubing:

Nominal Wall Thickness
Inch

Tolerance
Plus and Minus

Less than 1/16
1/16 and over

0.005 in.
10%