AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 3335

Issued 3-1-55
Revised

SILICONE RUBBER
Extreme Low Temperature Resistant
(45-55)

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 rubber-like parts required to operate or seal at temperatures from -100 to +250 F, compounded especially for operation at extreme low temperatures. Silicone elastomer is resistant to deterioration by weather and engine oil, and remains flexible at the low temperature 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 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.

4.2.1 As Received:

4.2.1.1	Hardness, Durometer "A" or equiv.	50 ± 5	ASTM D676-49T
4.2.1.2	Tensile Strength, psi, min	600	ASTM D412-51T, Die B or C
4.2.1.3	Elongation, %, min	175	ASTM D412-51T, Die B or C
4.2.1.4	Tensile Stress at 100% Elongation, psi	See Note 1	ASTM D412-51T, Die B or C
4.2.1.5	Tear Resistance, lb per in., min	45	ASTM D624-48, Die B

4.2.2	Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-52T Medium: ASTM Oil No. 1 Temperature: 212 F ± 2 Time: 70 hr
4.2.2.1	Hardness Change, Durometer "A" or equiv.	-10 to +5	
4.2.2.2	Tensile Strength Change, %, max (based on area before immersion)	-30	
4.2.2.3	Elongation Change, %, max	-15	
4.2.2.4	Volume Change (Method A), %	0 to +10	
4.2.2.5	Decomposition	None	
4.2.2.6	Surface Tackiness	None	
4.2.3	Dry Heat Resistance:		ASTM D573-52 Temperature: 212 F ± 2 Time: 24 hr
4.2.3.1	Hardness Change, Durometer "A" or equiv.	0 to +5	
4.2.3.2	Tensile Strength Change, %, max	-10	
4.2.3.3	Elongation Change, %, max	-15	
4.2.3.4	Bend (flat)	No cracking or checking	
4.2.4	Compression Set:		ASTM 395-53T, Method B Temperature: 212 F ± 2 Time: 22 hr Compressed to 0.350 in. thick
4.2.4.1	Per cent of original deflection, max	30	
4.2.4.2	Per cent of original thickness, max	8	
4.2.5	Low Temperature Resistance:		
4.2.5.1	Brittleness Temperature, deg Fahr, max	-100	ASTM D746-52T
4.2.5.2	Young's Modulus at -100 F, psi	See Note 1	ASTM D797-46

Note 1. Value to be reported.

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 (not both), Inches	Tolerance Plus and Minus	Ovality (See Note 2)
1/2 and under	0.020 in.	10%
Over 1/2 to 1, incl	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 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, 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 in accordance with the latest issue of AMS 2810.