AERONAUTICAL MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 3303D

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SILICONE RUBBER
General Purpose
(55 - 65)

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 rubber-like parts required to operate or seal at temperatures from -65 to +400 F. Silicone elastomer 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 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. When the product supplied is an extrusion of such shape that suitable test specimens cannot be cut from the product, a ø separate flat strip sample shall be supplied upon request. This strip shall be prepared from 1 in. ± 1/16 OD by 0.075 in. ± 0.008 thick wall tubing which shall be mechanically split and flattened into a strip while being extruded and then cured in the same manner as production material.

4.2.1 As Received:

4.2.1.1	Hardness, Durometer "A" or equiv.	60 ± 5	
ø 4.2.1.2	Tensile Strength, psi, min	600	ASTM D412-51T, Die B or C
4.2.1.3	Elongation, %, min	100	ASTM D412-51T, Die B or C
4.2.1.4 ø	Tensile Stress at 50% elongation, psi, min	250	ASTM D412-51T, Die B or C (See Note 1)

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4.2.1.5	Tear Resistance, lb per in., min	35	ASTM D624-54, Die B
ø 4.2.1.6	Specific Gravity	See Note 2	ASTM D297-55T
4.2.2	Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-57T Medium: ASTM Oil No.1 Temperature: 350 F ± 5 Time: 70 hr
4.2.2.1 ø	Hardness Change, Durometer "A" or equiv.	-15 to +5	
4.2.2.2	Tensile Strength Change, %, max (based on area before immersion)	-25	
ø 4.2.2.3	Elongation Change, %, max	-25	
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 D573-53 Temperature: 450 F ± 5 Time: 24 hr
4.2.3.1 ø	Hardness Change, Durometer "A" or equiv.	-5 to +10	
ø 4.2.3.2	Tensile Strength Change, %, max	-20	
ø 4.2.3.3	Elongation Change, %, max	-35	
4.2.3.4	Bend (flat)	No cracking or checking	
4.2.4	Compression Set:		ASTM D395-55, Method B Temperature: 350 F ± 5 Time: 22 hr Compressed to 70% of original thickness
ø 4.2.4.1	Per cent of original deflection, max	30	
ø 4.2.4.2	Per cent of original thickness, max	9	
4.2.5	Low Temperature Resistance:		
4.2.5.1 ø	Brittleness	Pass	ASTM D746-57T, Procedure B Temperature: -65 F ± 2 Time: 10 min
4.2.5.2	Young's Modulus, psi, max (See Note 3)	10,000	ASTM D797-58 Temperature: -60 F ± 2 Time: 5 hr

ø Note 1. Specimens shall be prestretched to 60% elongation twice within 5 min. of test.

Note 2. ø Value to be reported. Production material shall be within ± 0.05 of the value agreed upon by purchaser and vendor.

Note 3. This test is not normally required, but is intended to be used as a referee test in case of disagreement on the results of the brittleness test.

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

Note 4. 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 conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, value to be reported, form or part number, and quantity.