AEROSPACE
MATERIAL SPECIFICATIONS

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AMS 3357C

Issued 2-1-56
Revised 2-15-65

SILICONE RUBBER
Lubricating Oil and Compression Set Resistant
65 - 75

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. FORM: Sheet, strip, tubing, molded shapes, extrusions, or as ordered.

3. APPLICATION: Primarily for rubber-like parts required to operate or seal at temperatures from -55 to +230 C (-67 to +446 F), compounded especially for lubricating oil resistance and low compression set. Silicone elastomer is resistant to deterioration by weather and by high aniline point petroleum base oils, 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 the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable. When the product is an extrusion of such shape that suitable test specimens cannot be cut from the product, a 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.	70 ± 5	ASTM D676
4.2.1.2 Tensile Strength, psi, min	600	ASTM D412, Die B or C
4.2.1.3 Elongation, %, min	150	ASTM D412, Die B or C
4.2.1.4 Tensile Stress at 50% Elongation psi, min	200	ASTM D412, Die B or C
4.2.1.5 Tear Resistance, lb per in., min	60	ASTM D624, Die B
4.2.1.6 Specific Gravity	See Note 1	ASTM D297

4.2.2 Lubricating Oil Resistance: (Immediate Deteriorated Properties)			ASTM D471 Medium: ASTM Oil No. 1 Temperature: 175 C ± 3 (347 F ± 5.4) Time: 70 hr
4.2.2.1	Hardness Change, Durometer "A" or equiv.	-15 to +5	
4.2.2.2	Tensile Strength Change, %, max (based on area before immersion)	-30	
4.2.2.3	Elongation Change, %, max	-20	
4.2.2.4	Volume Change, %	0 to +25	
4.2.2.5	Decomposition	None	
4.2.2.6	Surface Tackiness	None	
4.2.3 Dry Heat Resistance:			ASTM D573 Temperature: 225 C ± 3 (437 F ± 5.4) Time: 24 hr
4.2.3.1	Hardness Change, Durometer "A" or equiv.	-5 to +10	
4.2.3.2	Tensile Strength Change, %, max	-15	
4.2.3.3	Elongation Change, %, max	-20	
4.2.3.4	Bend (flat)	No cracking or checking	
4.2.4 Compression Set:			ASTM D395, Method B Temperature: 175 C ± 3 (347 F ± 5.4) Time: 22 hr
4.2.4.1	Per cent of original deflection, max	35	
4.2.4.2	Per cent of original thickness, max	9	
4.2.5 Low Temperature Resistance:			
4.2.5.1	Brittleness	Pass	ASTM D746, Procedure B Temperature: -65 C ± 3 (-85 F ± 5.4) Time: 10 min.
4.2.5.2	Young's Modulus, psi, max (See Note 2)	10,000	ASTM D797 Temperature: -50 C ± 3 (-58 F ± 5.4) Time: 5 hr

Note 1. Value to be reported. Production material shall be within ±0.05 of the value agreed upon by purchaser and vendor.

Note 2. 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 and foreign materials and from imperfections detrimental to fabrication, appearance, or performance of parts.

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

6.1 Sheet:

Nominal Thickness Inches	Tolerance, Inch Plus and Minus
Up to 1/8, incl	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 3)
Up to 1/2, incl	0.020 in.	10
Over 1/2 to 1, incl	0.030 in.	15
Over 1	4%	15

Note 3. 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 transverse plane on the tube, expressed as a percentage of the nominal diameter.

6.2.2

Nominal Wall Thickness Inches	Tolerance Plus and Minus
Up to 1/16, excl	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.

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, supplier's compound number, 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 except cure date is not required.

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 from exposure to weather or any normal hazard.

9.2 Each package shall be permanently and legibly marked in accordance with the latest issue of AMS 2810 except cure date is not required.