

AERONAUTICAL MATERIAL SPECIFICATIONS

AMS 3366

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

Issued 1-15-61
Revised

SILICONE RUBBER COMPOUND

Room Temperature Vulcanizing 55,000 Centipoises Viscosity
(Durometer 55 - 70)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. FORM: Liquid compound, to which a separate catalyst is added for curing.
3. APPLICATION: Primarily for potting or encasement of electrical and electronic components with an elastomeric medium, or for production of mechanical rubber parts in low pressure tooling. Elastomeric properties are retained in operation at temperatures from -65 to +450 F. For mechanical applications where compression set resistance is important, elevated temperature post-curing of parts may be required.
4. TECHNICAL REQUIREMENTS:
 - 4.1 General:
 - 4.1.1 Curing: When mixed with catalyst in accordance with manufacturer's recommendations and cured at room temperature, the compound shall polymerize to a uniform elastomeric material. A number of different catalysts may be found applicable by the user in order to vary pot life and cure time to meet specific production conditions. However, for purposes of qualification against this specification and for inspection control, a standard catalyst type and quantity, as supplied or recommended by the manufacturer of the base compound, shall be used.
 - 4.1.2 Viscosity: Viscosity of compound as received shall be 40,000 - 75,000 centipoises when measured on a Brookfield Viscometer at 75 F $\pm$ 5. In measuring viscosity, the Viscometer spindle and speed used shall be consistent with the viscosity of the material being tested, in accordance with directions supplied by the manufacturer of the instrument.
 - 4.1.3 Pot Life: Compound mixed with the recommended catalyst addition (see 4.1.1) and maintained at a temperature not higher than 85 F shall have a pot life of not less than 30 minutes. Pot life shall be determined as follows: Weigh a 10 g $\pm$ 0.10 sample of the compound into a cup or dish 2 to 2.5 in. in diameter. Add the recommended type and amount of catalyst (see 4.1.1) and mix thoroughly with a small spatula for 60 sec $\pm$ 10. Dip the spatula into the catalyzed compound and pull out strings of material. Repeat the pulling-out procedure at intervals until the strings break or pull back before stretching more than 1/8 inch. Pot life shall be recorded as the time interval between completion of the mixing cycle and first breaking of strings pulled 1/8 inch.
 - 4.1.4 Shrinkage: Compound mixed with the recommended catalyst addition (see 4.1.1) and free of air shall shrink not more than 1% in any direction when cured for 16 hr in a mold followed by 24 hr in open air. Test specimen shall be a standard test slab approximately 6 x 6 in. and 0.075 in. $\pm$.005 thick. Curing temperature shall be 75 F $\pm$ 5.

Section 8.3 of the SAE Technical Board rules provides that: "All technical recommendations, including standards approved and practices recommended, are advisory only. The use by anyone engaged in industry or trade is entirely voluntary. There is no intent to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

4.1.5 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 compound, when mixed with the recommended catalyst addition (see 4.1.1) and cured, shall conform to the following requirements. Tests shall be performed in accordance with listed ASTM methods, insofar as practicable, on standard test slabs prepared in accordance with 4.1.4. Test results from specimens found to contain air bubbles at the point of break shall be discarded and new specimens selected for test.

4.2.1 As Cured:

4.2.1.1 Hardness, Durometer "A" or equiv. 55 - 70

4.2.1.2 Tensile Strength, psi, min 450 ASTM D412-51T, Die B or C

4.2.1.3 Elongation, %, min 70 ASTM D412-51T, Die B or C

4.2.1.4 Dielectric Strength, v per mil, min 300 ASTM D149-59
Electrode Diameter: 2 in.
Rate of Rise: 500 v per min.

4.2.2 Dry Heat Resistance:

4.2.2.1 Hardness Change, Durometer "A" or equiv. -5 to +10

4.2.2.2 Tensile Strength Change, %, max -35

4.2.2.3 Elongation Change, %, max -25

4.2.3 Compression Set:
(See Note 1)

4.2.3.1 Per cent of original deflection, max 30

4.2.3.2 Per cent of original thickness, max 9

ASTM D395-55 Method B
Temperature: 300 F $\pm$ 5
Time: 70 hr
Compressed to 70% of original thickness

4.2.4 Low Temperature Resistance:

4.2.4.1 Brittleness Pass ASTM D746-47T Procedure B
Temperature: -70 F $\pm$ 2
Time: 10 min.

Note 1. Specimens shall receive an additional cure of 24 hr at 450 F $\pm$ 5 in a circulating air oven before testing.

5. QUALITY: The product shall be uniform in quality and condition, clean, homogeneous, and free from foreign materials and from imperfections detrimental to fabrication, appearance, or performance of parts.