



AEROSPACE MATERIAL SPECIFICATION

AMS8660™**REV. A**Issued 2018-04
Revised 2025-08

Superseding AMS8660

Silicone Compound,
NATO Code Number S-736

FSC 6850

RATIONALE

Five-Year Review. A review of the entire document was made and a comparison to the original Military Standard. The document has been updated to reflect proper references, including standard numbers, titles, and formats. The document was reviewed for grammar and context and proposed updates provided. A general cleanup and update was performed.

1. SCOPE

- 1.1 This specification covers one type of a non-melting, heat-stable silicone compound, for use in high tension electrical connections, ignition systems, and electronics equipment, for application to unpainted mating threaded or non-threaded surfaces, and as a lubricant for components fabricated from elastomers. This compound is effective in the temperature range from -54 °C (-65 °F) to +204 °C (400 °F) for extended periods. This compound is identified by NATO symbol S-736 (see 6.5).

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 U.S. Government Documents

2.1.1 Specifications, Standards, and Handbooks

Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation form a part of this specification to the extent specified herein.

2.1.1.1 Specifications

2.1.1.1.1 Military

MIL-I-631 Insulation, Electrical, Synthetic-Resin Composition, Non-Rigid

MIL-I-24092 Insulation Varnishes and Solventless Resins for Application by the Dip Process

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SAE WEB ADDRESS:

Full document details: SAE AMS8660A

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS8660A/>

Documents

Standard Sharing Hub

MIL-STD-290 Packaging of Petroleum and Related Products

MIL-STD-1916 Sampling Procedures and Tables for Inspection by Attributes

2.1.1.2 Standards

2.1.1.2.1 Federal

A-A-59342 Ethyl Alcohol (For Ordnance use)

FED-STD-791 Lubricant, Liquid Fuel and Related Products, Methods of Testing

TT-I-735 Isopropyl Alcohol

2.2 Other Publications

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (U.S. and Canada only) or +1 724-776-4970 (Outside U.S. and Canada), www.sae.org.

AMS3217/2 Test Slabs, Acrylonitrile Butadiene (NBR-L), Low Acrylonitrile, 65 - 75

AMS4037 Aluminum Alloy, Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024; -T3 Flat Sheet, -T351 Plate), Solution Heat Treated

AMS4377 Magnesium Alloy, Sheet and Plate, 3.0Al - 1.0Zn - 0.20Mn (AZ31B-H24), Cold Rolled, Partially Annealed

AMS5901 Steel, Corrosion-Resistant, Sheet, Strip, and Plate, 18Cr - 8Ni (SAE 30301), Solution Heat Treated

AMS5910 Steel, Corrosion-Resistant, Sheet, Strip, and Plate, 19Cr - 9.2Ni (304), Cold Rolled, 1/4 Hard, 125 ksi (862 MPa) Tensile Strength

AMS-QQ-P-416 Plating, Cadmium (Electrodeposited)

2.2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B36 Standard Specification for Brass Plate, Sheet, Strip, and Rolled Bare

ASTM B69 Standard Specification for Rolled Zinc

ASTM B272 Standard Specification for Copper Flat Products with Finished (Rolled or Drawn Edges (Flat Wire and Strip)

ASTM D149 Dielectric Breakdown, Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

ASTM D150 AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation

ASTM D217 Cone Penetration of Lubricating Grease

ASTM D257 DC Resistance or Conductance of Insulating Materials

ASTM D495 High-Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation

ASTM D942 Oxidation Stability of Lubricating Greases by the Oxygen Pressure Vessel Method

ASTM D770 Standard Specification for Isopropyl Alcohol

ASTM D1478 Low-Temperature Torque of Ball Bearing Greases

ASTM D2000 Standard Classification System for Rubber Products in Automotive Applications

ASTM D5948 Standard Specification for Molded Compounds, Thermosetting

ASTM D6210 Fully-Formulated Glycol Base Engine Coolant for Heavy-Duty Engines

2.2.3 Code of Federal Regulations (CFR) Publications

Copies of these documents are available online at www.ecfr.gov.

29 CFR § 1910.1200 Hazard communication

2.2.4 Global Electronics Association Publications

Available from Global Electronics Association, 3000 Lakeside Drive, 105 N, Bannockburn, IL 60015, Tel: 847-615-7100, www.electronics.org.

J-STD-006 Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using federal agencies.)

2.3 Order of Precedence

In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Qualification

The silicone compound furnished under this specification shall be products that are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.3 and 6.3).

3.2 Materials

The materials used in the formulation of the silicone compound shall be of high quality and suitable for the intended use. The final product shall be a smooth, homogeneous, grease-like compound.

3.2.1 Toxicity

The material shall have GHS classification in accordance with 29 CFR § 1910.1200 as a nonhazardous substance or mixture.

3.2.2 Color

In its natural form, the compound shall be translucent and of a color similar to light gray or cream. When specified (see 6.2.c), a dye or pigment may be incorporated in the material provided the finished compound meets the requirements of this specification in all other respects.

3.3 Performance Characteristics

3.3.1 Physical Properties

Physical properties of the silicone compound shall be in accordance with the requirements in Table 1.

3.3.2 Waterproof Sealing

When tested as specified in 4.6.9, the test paper discs from three of the five tests shall show no pink coloration. Color changes within 1/8 inch (3 mm) of the edges of the test discs shall be disregarded.

3.3.3 Electrical Properties

Electrical properties of the silicone compound shall be in accordance with Table 2.

3.3.4 Storage Stability

Unworked and worked penetration of the compound after the 6 months of storage at $37.8\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ ($100\text{ }^{\circ}\text{F} \pm 5\text{ }^{\circ}\text{F}$) as specified in 4.6.14, taken at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ ($77\text{ }^{\circ}\text{F} \pm 2\text{ }^{\circ}\text{F}$), shall conform to the requirement in Table 1.

3.3.5 Workmanship

The compound shall be processed to produce a homogeneous mixture free from lumps, cakes, abrasives, and foreign materials.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use their own or any other facilities suitable for the performance of the inspection requirements specified herein.

4.2 Classification of Inspection

The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 Qualification Inspection

The qualification inspection shall consist of all the requirements and tests specified in Tables 1 and 2.

4.3.1 Qualification Inspection Sample

The qualification inspection sample shall consist of 10 pounds of the compound packaged as specified in Section 5 of this specification. The sample shall be plainly and durably marked with the following information:

Sample for qualification inspection
SILICONE COMPOUND, NATO CODE NUMBER S-736
AMS8660

Name of manufacturer

Product code number

Date of manufacture

Submitted by (name) (date) for qualification inspection in accordance with the requirements of AMS8660 under authorization (reference authorizing letter) (see 6.3)