



AEROSPACE STANDARD	AS8660™	REV. A
	Issued	1999-07
	Cancelled	2020-09
Superseded by AMS8660		
Silicone Compound NATO Code Number S-736		
FSC 6850		

RATIONALE

AMS8660 was issued April 2018 to supersede AS8660, originally issued in July of 1999. In 1999, AS8660 was taken directly from U.S. Military Specification MIL-S-8660C, Amendment 1 and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. Revisions in the initial release of AMS8660 include updates to referenced standards, required testing, and testing procedures to current methods. It is the recommendation of AMS-M to cancel AS8660 with suppression to AMS8660.

CANCELLATION NOTICE

This Technical Report has been declared "CANCELLED" as of September 2020 and has been superseded by AMS8660. By this action, this document will remain listed in the respective index, if applicable. Cancelled Technical Reports are available from SAE.

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SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

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Full document details: SAE AS8660A

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NOTICE

This document has been taken directly from U.S. Military Specification MIL-S-8660C, Amendment 1 and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-S-8660C, Amendment 1. Any part numbers established by the original specification remain unchanged.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any requirement relating to qualified products lists (QPL's) has not been adopted by SAE and is not part of this SAE technical document.

1. SCOPE:

1.1 Scope:

This specification covers one type of a nonmelting, 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 rubber. This compound is effective in the temperature range from -54°C (-65°F) to +204°C (+400°F) for extended periods and to 260°C (500°F) for short periods. This compound is identified by NATO symbol S-736 (see 6.5).

2. APPLICABLE DOCUMENTS:

2.1 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.

SPECIFICATIONS

FEDERAL

O-A-548	Antifreeze/Coolant, Engine, Ethylene Glycol, Inhibited, Concentrated
O-G-491	Glycerol, Technical (High Gravity)
QQ-A-250/4	Aluminum Alloy 2024, Plate and Sheet
QQ-B-613	Brass, Leaded and Non-Leaded, Flat Products, (Plate, Bar, Sheet and Strip)
QQ-C-502	Copper Rods and Shapes, and Flat Products with Finished Edges (Flat Wire, Strips and Bars)
QQ-L-201	Lead Sheet
QQ-P-416	Plating, Cadmium (Electrodeposited)
QQ-S-571	Solder, Tin Alloy, Lead-Tin Alloy, and Lead Alloy
QQ-Z-301	Zinc Sheet and Strip
TT-I-735	Isopropyl Alcohol

MILITARY

MIL-M-14	Molding Plastics and Molded Plastic Parts, Thermosetting
MIL-E-463	Ethyl Alcohol (For Ordnance Use)
MIL-E-480	Enamel, Baking, Phenol-or-Urea-Formaldehyde
MIL-I-631	Insulation, Electrical, Synthetic-Resin Composition, Non-rigid
MIL-R-3065	Rubber, Fabricated Parts
MIL-C-3702	Cable, Power, Electrical, Ignition, High Tension
MIL-S-5059	Steel, Corrosion Resistant (18-8), Plate, Sheet and Strip
MIL-I-24092	Insulation Varnish, Electrical, Impregnating, Solvent Containing

2.1.1 (Continued):

STANDARDS

FEDERAL

FED-STD-313 Material Safety Data Sheets Preparation and the Submission of
FED-STD-791 Lubricant, Liquid Fuel and Related Products, Methods of Testing

MILITARY

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-290 Packaging of Petroleum and Related Products

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications:

The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

ASTM A 569 Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip, Commercial Quality
ASTM D 149 Dielectric Breakdown, Voltage and Dielectric Strength of Electrical Insulating Materials at Commercial Power Frequencies
ASTM D 150 A-C Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials
ASTM D 217 Cone Penetration of Lubricating Grease
ASTM D 257 D-C Resistance or Conductance of Insulating Materials
ASTM D 495 High Voltage, Low Current, Dry Arc Resistance of Solid Electrical Insulation
ASTM D 1478 Low-Temperature Torque of Ball Bearing Greases

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC (SAE)

AMS 4377 Sheet and Plate - 3.0 AL 1.0 Zn

(Application for copies should be addressed to SAE, 400 Commonwealth Drive, Warrendale, PA 15096.)

(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 which 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, non-lumpy grease-like compound.

3.2.1 Toxicity: The material shall have no adverse effect on the health of personnel when used for its intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as an adviser to the contracting agency.

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 6.2c), 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 I.

3.3.2 Waterproof sealing: When tested as specified in 4.6.9, the test paper discs from 3 of the 5 tests shall show no pink coloration. Color changes within 1/8 inch 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 II.

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

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 his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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 I and II.

- 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 forwarded to the qualifying laboratory, Commander, Naval Air Development Center, Attention: Aircraft and Crew Systems Technical Directorate (6062), Warminster, PA 18974. The sample shall be plainly and durably marked with the following information:

Sample for qualification inspection

SILICONE COMPOUND, NATO CODE NUMBER S-736

MIL-S-8660C

Name of manufacturer

Product code number

Date of manufacture

Submitted by (name) (date) for qualification inspection in accordance with the requirements of MIL-S-8660C under authorization (reference authorizing letter) (see 6.3).