SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS2518 REV. C

Issued 1984-04
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Revised 2010-12

Superseding AMS2518B

Thread Compound, Anti-Seize, Graphite-Petrolatum

RATIONALE

AMS2518C results from a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers an anti-seize compound in the form of a grease.

1.2 Application

This compound has been used as an anti-seize compound on aircraft engine spark plugs and threaded fasteners and fittings, but usage is not limited to such applications. This compound may be used safely in contact with austenitic corrosion-resistant steels, titanium, nickel, and cobalt alloys, and similar corrosion-resistant metals and alloys. This compound contains graphite which may promote corrosion of aluminum, magnesium, ferrous, zinc, and cadmium alloys or plated coatings and should not be used in contact with such metals.

1.2.1 Jurisdiction

This specification is the responsibility of SAE Committee AMS-M, because the materials under this specification are formulated and tested as greases. However, the anti-seize qualities are relevant to Committee AMS-B.

Therefore any changes or amendments to this specification shall be made by Committee AMS-M but must be formally agreed by Committee AMS-B.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS2518C

2.1 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 C 136	Sieve Analysis of Fine and Coarse Aggregates
ASTM C 560	Chemical Analysis of Graphite
ASTM C 561	Ash in Graphite Sample
ASTM D 91	Precipitation Number of Lubricating Oils
ASTM D 92	Flash and Fire Points by Cleveland Open Cup Tester
ASTM D 127	Drop Melting Point of Petroleum Wax, Including Petrolatum
ASTM D 130	Corrosiveness to Copper from Petroleum Products by Copper Strip Test
ASTM D 445	Kinematic Viscosity of Transparent and Opaque Liquids (the Calculation of Dynamic Viscosity)
ASTM D 482	Ash from Petroleum Products
ASTM D 664	Acid Number of Petroleum Products by Potentiometric Titration
ASTM D 217	Standard Test Methods for Cone Penetration of Lubricating Grease
	NOTE: This test is used in preference to ASTM D-937 because D-937 applies heat in such a way that the petrolatum would become liquid and the graphite would fall out of suspension.
ASTM D 1500	ASTM Color of Petroleum Products (ASTM Color Scale)
ASTM D 2273	Trace Sediment in Lubricating Oils

2.2 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, http://assist.daps.dla.mil/quicksearch/.

FED-STD-791	Lubricants, Liquid Fuels, and Related Products; Method of Testing

3. TECHNICAL REQUIREMENTS

3.1 Composition (Percent by Weight)

As shown in Table 1.

TABLE 1 - COMPOSITION

Ingredient	min	max
Petrolatum	48	52
Graphite	48	52

3.2 Properties

The individual components and the product shall conform to the following requirements; tests shall be performed on the components and product supplied and in accordance with specified test methods, insofar as practicable:

3.2.1 Petrolatum shall be uniform in quality, clean, homogeneous, and free from abrasive and foreign materials and shall conform to the requirements shown in Table 2.

TABLE 2 - PETROLATUM PROPERTIES

Paragraph	Property	Value	Test Method
3.2.1.1	Color	2 to 8	ASTM D 1500
3.2.1.2	Melting Point	113 to 140 °F (45 to 60 °C)	ASTM D 127
3.2.1.3	Viscosity, Kinematic at 212 °F (100 °C)	11.6 to 18.0 cSt	ASTM D 445
3.2.1.4	Flash Point, minimum	392 °F (200 °C)	ASTM D 92
3.2.1.5	Penetration (unworked)	150 to 275	ASTM D 217
3.2.1.6	Corrosion at 212 °F ± 2 (100 °C ± 1) 24 hours, (copper strip)	No discoloration of petrolatum or copper strip	ASTM D 130
3.2.1.7	Ash Content, by weight, maximum	0.1%	ASTM D 482
3.2.1.8	Neutralization Number, maximum	0.25/0.3	ASTM D 664
3.2.1.9	Precipitation Number, maximum	0.10	4.5.2.1
3.2.1.10	Abrasive Material	None	4.5.2.2
3.2.1.11	Evaporation Loss, maximum	2%	4.5.2.3

3.2.2 Graphite shall be a uniform, dry powder, either natural or manufactured, free from caking or lumping, and free from adulterants, abrasives, and foreign matter, and shall conform to the requirements shown in Table 3. There is no restriction to natural or synthetic graphite.

TABLE 3 - GRAPHITE PROPERTIES

Paragraph	Property	Value	Test Method
3.2.2.1	Graphite, Carbon Content, minimum	95%	ASTM C 560
3.2.2.2	Ash Content, maximum	2.5%	ASTM C 561
3.2.2.3	Particle Size (retained on 100 mesh (150 µm) screen)	None	ASTM C 136
	(retained on 200 mesh (75 µm) screen), maximum	2.0%	

3.2.3 Product

The product, mixed according to the composition of 3.1, shall conform to the requirements shown in Table 4; tests shall be performed on the product supplied and in accordance with specified test methods, insofar as practicable:

TABLE 4 - COMPOUND PROPERTIES

Paragraph	Property	Value	Test Method
3.2.3.1	Worked Penetration	170 to 260	ASTM D 217
3.2.3.2	Stability	No separation of mixture	4.5.1

3.3 Quality

The product, as received by purchaser, shall be uniform in quality and condition and free from foreign materials and from other contaminants detrimental to usage of the product.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The /supplier of the product shall supply all samples for supplier's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Worked penetration (3.2.3.1) and stability (3.2.3.2) are acceptance tests and shall be performed on representative samples from each lot.

4.2.2 Preproduction Tests

All property verification tests (Section 3) are preproduction tests and shall be performed prior to or on the initial shipment of the product to a purchaser and when cognizant engineering organization requires confirmatory testing.

4.3 Sampling and testing shall be as follows:

4.3.1 Acceptance Tests

A lot shall be any amount of product produced in a single production run and presented for /supplier’s inspection at one time.

4.3.1.1 Bulk Quantity

Samples for tests shall be selected in accordance with FED-STD-791, Method 8001.

4.3.1.2 Filled Containers

A random sample of filled containers shall be taken from each lot to verify conformance to all requirements of this specification regarding fill, closure, marking, and other requirements not involving tests.

4.3.2 For Preproduction Tests

As required by the specified test method, unless otherwise specified by purchaser.