

**INCH-POUND**

**MIL-T-5544C**  
**4 April 1991**  
**SUPERSEDING**  
**MIL-T-5544B**  
**24 February 1964**

## **MILITARY SPECIFICATION**

### **THREAD COMPOUND, ANTISEIZE, GRAPHITE-PETROLATUM**

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

#### **1. SCOPE**

1.1 Scope. This specification covers the general requirements of one type graphite containing antiseize thread compound. This antiseize thread compound is identified by NATO Code No. S-720 (see 6.3).

#### **APPLICABLE DOCUMENTS**

##### **2.1 Government documents**

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

#### **SPECIFICATIONS**

##### **FEDERAL**

SS-G-659	Graphite; Dry (Lubricating)
VV-P-236	Petrolatum, Technical

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to:  
ASD/ENES, Wright-Patterson AFB OH 45433-6503 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter

AMSC N/A

FSC 8030

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**MIL-T-5544C****STANDARDS****FEDERAL**

FED-STD-313      Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities

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

**MILITARY**

MIL-STD-290      Packaging, Packing, and Marking of Petroleum and Related Products

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

**2.2 Non-Government publications.** The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

**AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM D 96              Water and Sediment in Crude Oil by Centrifuge Method

ASTM D 217            Cone Penetration of Lubricating Grease

ASTM D 4057          Manual Sampling of Petroleum and Petroleum Products

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

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

**2.3 Order of precedence.** In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulation unless a specific exemption has been obtained.

**3. REQUIREMENTS**

**3.1 Material.** The physical composition of the thread compound shall be 50  $\pm$ 2 percent of weight of petrolatum (see 3.1.1) with the balance by weight percent of graphite (see 3.1.2).

**3.1.1 Petrolatum.** The petrolatum shall conform to federal specification VV-P-236.

**3.1.2 Graphite.** The graphite shall conform to federal specification SS-G-659 with respect to graphitic carbon and ash content and percent adulterants. No residue shall be retained on a 100-mesh screen; not more than 2 percent shall be retained on a 200-mesh screen.

**MIL-T-5544C****3.2 Functional characteristics**

3.2.1 Worked penetration. The worked penetration of the thread compound shall be 170 or above penetration range, but not to exceed 260 when tested as specified in 4.3.1.

3.2.2 Stability. The thread compound shall show no separation when tested as specified in section 4.

3.2.3 Toxicity. The thread compound shall have no adverse effect on the health of personnel when used for its intended purpose. The compound shall contain no elements which produce noxious vapors in such concentration as to irritate personnel during formulation or use under conditions of adequate ventilation when exercising caution to avoid prolonged contact with the skin and while observing Occupational Safety and Health Administration (OSHA) guidelines. Questions pertaining to the toxic effects shall be referred by the procuring activity to the appropriate departmental medical service who will act as an advisor to the procuring activity. Material safety data sheets shall be prepared and submitted in accordance with FED-STD-313.

3.3 Workmanship. The thread compound shall be free from cakes, lumps and hard gritty particles. There shall be no separation when tested as specified in section 4.

**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 (examinations and tests) 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 ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspection. The inspection requirements specified herein are classified as quality conformance inspection (see 4.3).

4.3 Quality conformance inspection. Quality conformance inspection shall consist of sampling plans A and B.

4.3.1 Batch lot. A batch lot shall consist of 500 pounds or less of compound manufactured at one time from one batch of compound (see 3.1) offered for delivery at one time.

4.3.2 Sampling plan A. A one-pound sample of the compound (see 3.1) shall be selected at random from each inspection lot in accordance with ASTM D 4057, FED-STD-791 and subjected to the tests specified in 4.4.

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4.3.3 Sampling plan B. A random sample of filled containers fully prepared for delivery shall be selected in accordance with table I. This samples shall be subject to the inspections specified in 4.4.2. If any sample fails, the lot shall be rejected.

Table I. Sampling plan

Lot Size	Sample Size
1-4	all
5-50	5
51-90	7
91-150	11
151-280	13
281-500	16
501-12,000	19
[acceptance number is zero, (c + 0)]	

#### 4.4 Methods of inspection.

4.4.1 Inspection. Inspection shall be in accordance with method 9601 of FED-STD-791.

4.4.2 Examination of filled containers. Each sample, selected in accordance with 4.3.3, shall be visually examined for appearance of the compound (see 3.3), for defects of construction of the container and the closure, for evidence of leakage, for unsatisfactory markings and all other preparation for delivery requirements of section 5. Each sample filled container shall also be weighed to determine the amount of contents. Any container in the sample having one or more defects, or under the required fill, shall be rejected.

4.4.3 Penetration. The normal worked penetration of the thread compound shall be determined in accordance with ASTM D217.

4.4.4 Stability. The stability of the thread compound shall be determined by placing 100 grams of the compound in each of the two coneshaped centrifuge tubes, and centrifuging at 1500 rpm for 1/2 hour. The apparatus to be used for this test is described in ASTM D 96. Separation shall be defined as droplets or layers of oil appearing on the surface of the compound after centrifuging.

4.4.5 Rejection. Failure of any sample selected in accordance with 4.3.2, to pass any of the tests of 4.4, shall be cause for rejection of the lot represented.

## 5. PACKAGING

5.1 Preservation packaging. Preservation-packaging of the thread compound shall be in accordance with MIL-STD-290. The levels of packaging and packing shall be as specified in 6.2. All materials used in the construction of the containers shall be such as will not affect or be affected by the contained thread compound. Just prior to filling, all

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containers shall be examined to ensure absolute absence of loose solder, dirt, fibers, linet, metal particles, seaming compound, corrosion products, water or other foreign contaminants. The bottom seam shall show no extruded seaming compound and there shall be no seaming compound on the body immediately adjacent to the side seam. Visible seaming compound, evenly distributed and forming a very fine edge at the point of contact of the seam with the body, shall not be cause for rejection. If a soldered seam is used in the fabrication of the can, residual soldering flux shall not be present on the inside seam of the container.

**5.2 Marking precautionary.** The following markings shall appear on each package and shipping container:

DANGER: This material is an electrical conductor. Apply light coating to lower spark plug threads only. Material must not come in contact with spark plug terminal or electrodes. Do not use in oxygen systems. Explosion may result.

**6. NOTES**

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

**6.1 Intended use.** This compound is particularly suitable for use on aircraft engine spark plugs and threaded fasteners and fittings. This compound may safely be used in contact with austenitic stainless steels, titanium, nickel and cobalt alloys, and similar corrosion resistant metals and alloys. This compound contains graphite which may promote corrosion of aluminum, ferrous, magnesium, zinc or cadmium alloys or platings and should not be used in contact with these metals. At application temperatures below 538°C, MIL-T-83483 should be used.

**6.2 Acquisition requirements.** Acquisition documents should specify the following information:

- a. Title, number and date of this specification.
- b. Applicable levels of packaging and packing (see 5.1).

**6.3 Unit of purchase.** The material should be purchased by weight, the unit being one pound.

**6.4 Subject term (key word) listing.**

Dry lubricating

Graphite

Petrolatum

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6.5 International standardization. Certain provision of this specification are the subject of international standardization agreements ASCC Air Standard 15/1 and the NATO STANAG 1135. When amendment, revision, or cancellation of this specification is proposed, which affects the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization channels, if required.

6.6 Changes from previous issues. Marginal notations are not used in this revisions to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army – MR  
Air Force – II

Preparing activity:

Air Force – 11

Review activities:

Army – AV, MI

International interest:  
(see section 6)

User activities:

Army – ME  
Navy – YD, SH  
USMC – MC

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