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AEROSPACE MATERIAL SPECIFICATION

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AMS 3161A

Issued 15 MAY 1972
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Superseding AMS 3161

Submitted for recognition as an American National Standard

**OIL, ODORLESS
Heavy Solvent**

1. SCOPE:

1.1 Form:

This specification covers a petroleum base material in the form of a liquid.

1.2 Application:

This fluid has been used typically for testing aircraft fuel tanks, but usage is not limited to such application.

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 following publications form a part of this specification to the extent specified herein. The applicable issue of referenced publications shall be the issue in effect on the date of the purchase order.

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2.1 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

- ASTM D 56 Flash Point by Tag Closed Tester
- ASTM D 86 Distillation of Petroleum Products
- ASTM D 88 Saybolt Viscosity
- ASTM D 130 Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test
- ASTM D 156 Saybolt Color of Petroleum Products (Saybolt Chromometer Method)
- ASTM D 235 Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvents)
- ASTM D 1298 Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
- ASTM D 4057 Manual Sampling of Petroleum and Petroleum Products

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-290 Packaging of Petroleum and Related Products

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall consist of a refined straight run distillate from crude petroleum without the admixture of benzol, ether, alcohols, chlorinated hydrocarbons, and other compounds not occurring naturally in crude petroleum.

3.2 Properties:

Solvent shall conform to the following requirements:

- 3.2.1 Color: Water white, not darker than No. 25 Saybolt, determined in accordance with ASTM D 156.
- 3.2.2 Flash Point: Not lower than 150 °F (66 °C), determined in accordance with ASTM D 56.
- 3.2.3 Corrosion: Shall be not greater than Class 1, determined at 212 °F $\pm$ 2 (100 °C $\pm$ 1) in accordance with ASTM D 130.

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- 3.2.4 Distillation: Fluid shall show an even chain of boiling points and shall conform to values shown in Table 1, determined in accordance with ASTM D 86.

TABLE 1 - Distillation Points

Points	Min	Max
Initial Boiling Point	375 °F (191 °C)	--
Dry End Point	435 °F (224 °C)	475 °F (246 °C)

- 3.2.5 Doctor Test: Shall be negative, determined in accordance with ASTM D 235.
(R)

- 3.2.6 API Gravity: Shall be 46 to 50, determined in accordance with ASTM D 1298.
(R)

- 3.2.7 Viscosity: Shall be 30 to 32 SUS, determined in accordance with ASTM D 88
(R) at 100 °F (38 °C).

3.3 Quality:

Fluid, as received by purchaser, shall be free of odor, clear, and free from suspended solids, undissolved water, free acid, alkali, inorganic compounds, and other compounds known to be toxic or to cause harmful physiological or dermal effects.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: (R)

The vendor of the fluid shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing as deemed necessary to ensure that the fluid conforms to the requirements of this specification.

4.2 Classification of Tests: (R)

Tests for all technical requirements are acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing: (R)

Shall be in accordance with all applicable requirements of ASTM D 4057 or other procedure acceptable to purchaser; a lot shall be all fluid from a single refinery batch offered for delivery at one time.

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4.4 Reports:

The vendor of fluid shall furnish with each shipment a report showing the results of tests made on each lot to determine conformance to the technical requirements. This report shall include the purchase order number, lot number, AMS 3161A, and quantity.

4.5 Resampling and Retesting:

(R)

If any sample used in the above tests fails to meet the specified requirements, disposition of the fluid may be based on the results of testing three additional samples for each original nonconforming sample. Failure of any retest sample to meet the specified requirements shall be cause for rejection of the fluid represented. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Each container of fluid shall be legibly marked with not less than AMS 3161A, purchase order number, manufacturer's identification, lot number, quantity, and directions for use or precautions for storage.

5.2 Packaging:

(R)

5.2.1 A lot of fluid may be packaged in small quantities and delivered under the (R) basic lot approval provided lot identification is maintained.

5.2.2 Fluid shall be packaged in containers of a type and size acceptable to (R) purchaser.

5.2.3 Containers of fluid shall be prepared for shipment in accordance with (R) commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the fluid to ensure carrier acceptance and safe delivery.

5.2.4 For direct U.S. Military procurement, packaging shall be in accordance (R) with MIL-STD-290, Commercial Level, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS:

Fluid not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.