# AEROSPACE MATERIAL SPECIFICATION

| AMS2641 | REV. C |
|---|---|

Issued 1988-01
Revised 2015-05

Superseding AMS2641B

## Vehicle, Magnetic Particle Inspection Petroleum Base

RATIONALE

AMS2641C results from a Limited Scope Ballot to revise the Acid Number (3.2.5).

1. SCOPE

1.1 Form

This specification covers two types of refined hydrocarbon compounds in the form of liquids.

1.2 Application

This product has been used typically as a vehicle for the suspension of magnetic particles used in magnetic particle inspection procedures, but usage is not limited to such applications.

1.3 Classification

Products covered by this specification are classified as follows:

Type 1 Flash Point over 200 °F (93 °C)
Type 2 Flash Point 140 to 200 °F (60 to 93 °C)

1.3.1 Type 1 shall be supplied unless Type 2 is ordered.

1.4 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)**
**Tel: +1 724-776-4970 (outside USA)**
**Fax: 724-776-0790**
**Email: CustomerService@sae.org**
**SAE WEB ADDRESS:** **http://www.sae.org**

**SAE values your input. To provide feedback on this Technical Report, please visit**
**http://www.sae.org/technical/standards/AMS2641C**

2.1 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, Tel: 212-642-4900, www.ansi.org.

Z400.1 Hazardous Workplace Chemicals - Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation

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 D93 Flash Point by Pensky-Martens Closed Cup Tester

ASTM D445 Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

ASTM D1500 ASTM Color of Petroleum Products (ASTM Color Scale)

ASTM D2276 Particulate Contamination in Aviation Fuel by Line Sampling

ASTM D3242 Acidity in Aviation Turbine Fuel

ASTM D4177 Automatic Sampling of Petroleum and Petroleum Products

3. TECHNICAL REQUIREMENTS

3.1 Material

Shall be a refined petroleum distillate conforming to 3.2.

3.2 Properties

Vehicle shall conform to the following requirements:

3.2.1 Flash Point

Shall be as follows, determined in accordance with ASTM D93.

3.2.1.1 Type 1

Over 200 °F (93 °C).

3.2.1.2 Type 2

140 to 200 °F (60 to 93 °C).

3.2.2 Viscosity

Shall be not higher than 3.0 centistokes at 100 °F (38 °C) and not higher than 5.0 centistokes at the lowest temperature at which the vehicle will be used, determined in accordance with ASTM D445.

3.2.3 Fluorescence

Shall be not greater than that of a 10-ppm ($1.27 \times 10^{-5}$ molar) solution of quinine sulfate dihydrate in 0.1 N sulfuric acid ($H_2SO_4$), determined by comparison of the two solutions in 10 x 75 mm round glass tubes. Determinations shall be made in accordance with 3.2.3.1 or 3.2.3.2.

3.2.3.1 Determinations shall be made in a photo-electric fluorometer equipped with an S4 response phototube, Corning 7-37 or 7-39 primary filter, or equivalent, and a combination secondary filter including Corning 3-77 and Kodak 2A, 86A, and CC40Y filters, or equivalent.

3.2.3.2 Determinations may be made by comparison of the two tubes under black light.

3.2.4 Particulate Matter

Shall be not more than 1.0 mg/L, determined in accordance with ASTM D2276.

3.2.5 Total Acid Number

Shall be not higher than 0.015 mg of potassium hydroxide (KOH) per gram, determined in accordance with ASTM D3242.

3.2.6 Odor

Shall not be offensive, objectionable, or disagreeable.

3.2.7 Color

Shall be not darker than No. 2 ASTM color, determined in accordance with ASTM D1500.

3.2.8 Toxicity

The vehicle shall have no adverse effect on the health of personnel when used for its intended purpose. The vehicle shall not contain any components which produce toxic vapors in such concentrations as to be an annoyance to personnel during use under conditions of adequate ventilation. The toxicological properties of the vehicle shall be reported as in 4.5.

3.3 Quality

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

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The vendor of the vehicle shall supply all samples for vendor'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 vehicle conforms to specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Flash point (3.2.1), viscosity (3.2.2) fluorescence (3.2.3), and odor (3.2.6) are acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests

All technical requirements are preproduction tests and shall be performed prior to or on the initial shipment of the vehicle to a purchaser, when a change in ingredients and/or method of manufacture requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.3 Sampling and Testing

Shall be in accordance with ASTM D4177; a lot shall be all vehicle from one batch or tank offered for delivery at one time. If vehicle cannot be identified by batch or tank, a lot shall consist of not more than 10 000 gallons (37 854 L) offered for delivery at one time.

4.4 Approval

4.4.1 Sample vehicle shall be approved by purchaser before vehicle for production use is supplied, unless such approval be waived by purchaser. Results of tests on production vehicle shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods on production vehicle which are the same as those used on the approved sample vehicle. If necessary to make any change in ingredients or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in ingredients and/or processing and, when requested, sample vehicle. Production vehicle made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports

The vendor of the vehicle shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the vehicle conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS2641C, type, date of manufacture, and quantity.

4.5.1 A material safety data sheet conforming to ANSI Z400.1, or equivalent, shall be supplied to each purchaser prior to, or concurrent with, the report of preproduction test results or, if preproduction testing be waived by purchaser, concurrent with the first shipment of vehicle for production use. Each request for modification of vehicle formulation shall be accompanied by a revised data sheet for the proposed formulation.

4.6 Resampling and Retesting

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

5. PREPARATION FOR DELIVERY

5.1 Identification

Each container shall be permanently and legibly marked with a durable label listing not less than the following information:

Vehicle, magnetic particle inspection, petroleum base
AMS2641C
Manufacturer's Identification
Date of Manufacture (if not coded in batch number)
Batch Number
Quantity
Manufacturer's Instructions for use (may be on separate sheet)
Appropriate Warnings or Precautionary Notices
Purchase Order Number (on outside container only).