

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 3022C

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Superseding AMS 3022B

Reference Fluid for Testing Hydrocarbon
Fuel Resistant Materials: 10% Aromatic Content

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1. SCOPE:

This specification covers a hydrocarbon fluid mixture for use as a reference fuel test fluid to evaluate the ability of polymeric compounds to conform to designated requirements after immersion in the fluid at a specific temperature for a specified time, as required by an applicable specification.

1.1 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 latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2835 Material Safety Data Sheets

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 4057 Manual Sampling of Petroleum and Petroleum Products

ASTM D 4177 Automatic Sampling of Petroleum and Petroleum Products

Annex A2.8 Part 47, Annual Book of ASTM Standards

2.3 U.S. Government Publications:

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

MIL-STD-2073-1 DOD Material, Procedures for Development and Application of Packaging Requirements

3. TECHNICAL REQUIREMENTS:

3.1 Material:

The test fluid shall consist of a mixture, by volume, of 90% $\pm$ 0.5 iso-octane and 10% $\pm$ 0.5 toluene.

3.1.1 The iso-octane shall conform to Annex A2.8 to Part 47 of the Annual Book of ASTM Standards.

3.2 Quality:

The fluid, as received by purchaser, shall be free from water, sediment, and suspended matter. The odor shall not be nauseating or irritating. No substance of known dangerous toxicity under normal conditions of handling and use shall be present.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

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

4.2 Classification of Tests:

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

4.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test fluid shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling and Testing:

Shall be in accordance with ASTM D 4057 or ASTM D 4177, as applicable. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1 A lot shall be all fluid from one batch or tank presented for manufacturer's inspection at one time and shall not exceed 5000 gallons (18,927 L).

4.3.2 A statistical sampling plan, acceptable to purchaser, may be used in lieu of sampling as in 4.3 and the report of 4.5 shall state that such plan was used.

4.4 Approval:

- 4.4.1 Sample fluid shall be approved by purchaser before fluid for production use is supplied, unless such approval be waived by purchaser. Results of tests on production fluid shall be essentially equivalent to those on the approved sample.
- 4.4.2 Manufacturer shall use ingredients, manufacturing procedures, and methods of inspection on production fluid which are essentially the same as those used on the approved sample. If necessary to make any change in ingredients and/or in manufacturing procedures, manufacturer shall submit for reapproval a statement of the proposed changes in ingredients, and/or processing and, when requested, sample fluid. Production fluid made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

The supplier of fluid shall furnish with each shipment a report stating that the fluid conforms to specified requirements. This report shall include the purchase order number, lot number, AMS 3022B, and quantity.

- 4.5.1 A material safety data sheet conforming to AMS 2825, 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 fluid for production use. Each request for modification of fluid 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 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 Packaging and Identification:

- 5.1.1 The fluid shall be packed in airtight containers of such size and design as to keep ullage to a minimum.
- 5.1.2 A lot of fluid may be packaged in small quantities and delivered under the basic lot approval provided lot identification is maintained.