SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3021C

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Superseding AMS 3021B

Fluid, Reference for Testing Di-Ester (Polyol) Resistant Material

1. SCOPE:

1.1 Form:

This specification covers a neopentyl polyol ester fluid.

1.2 Application:

This fluid has been used typically to evaluate the ability of elastomeric and other polymeric compounds to conform to designated requirements after immersion in the fluid at a specific temperature and time, as required by an applicable specification, and its use is limited to such applications. This fluid is not intended for operational use in gas turbine engines (See 8.2). Each application should be considered separately.

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 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.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

2.1 SAE Publications:

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

AMS 2825 Material Safety Data Sheets

2.2 ASTM Publications:

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

ASTM D 445 Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)
ASTM D 664 Neutralization Number by Potentiometric Titration
ASTM D 1218 Refractive Index and Refractive Dispersion of Hydrocarbon Liquids
ASTM D 1298 Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
ASTM D 1744 Water in Liquid Petroleum Products by Karl Fischer Reagent
ASTM D 4057 Manual Sampling of Petroleum and Petroleum Products

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Test fluid shall consist of a refined product of neopentyl ester with 0.5% phenothiazine added as an antioxidant.

3.2 Properties:

The product shall conform to the requirements shown in Table 1; tests shall be performed on the fluid supplied and in accordance with specified test methods.

TABLE 1 - Properties

Property	Requirement	Test Method
3.2.1 Specific Gravity at 16/16 °C (60/60 °C)	0.961 to 0.967	ASTM D 1298
3.2.2 Viscosity at 38 °C (100 °F)	14.60 to 15.60 cst	ASTM D 445
3.2.3 Viscosity at 99 °C (210 °F)	3.0 to 4.0 cst	ASTM D 445
3.2.4 Acid Number, max	0.10 milligrams KOH/gram	ASTM D 664
3.2.5 Water Content by weight, max	0.10%	ASTM D 1744
3.2.6 Refractive Index at 23 °C (73 °F)	1.449 to 1.455	ASTM D 1218
3.2.7 C_7 Acid Component, min	93%	4.5
3.2.8 Hydroxyl Content, max	0.1%	4.5

3.3 Quality:

The fluid, as received by purchaser, shall be free from water, sediment, and suspended matter. The odor shall not be irritating or nauseating. No substance of known 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 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 fluid conforms to the requirements.

4.2 Classification of Tests:

All technical requirements are acceptance tests and shall be performed prior to shipment of fluid by the manufacturer.

4.3 Sampling and Testing:

Shall be in accordance with ASTM D 4057. 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 presented for manufacturer's inspection at one time.

4.3.2 When a statistical sampling plan has been agreed upon by purchaser and supplier, sampling shall be in accordance with such plan in lieu of sampling as in 4.3 and the report of 4.6 shall state that such plan was used.

4.4 Approval:

If requested by purchaser, sample fluid shall be submitted for approval by the purchaser before fluid for production use is supplied. If necessary to make any change in ingredients, in type of equipment for processing, 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 (See 8.5). Production fluid made by the revised procedure shall not be shipped prior to receipt of approval.

4.5 Test Methods:

Shall be as agreed upon by purchaser and manufacturer for determining the C_7 acid component (3.2.7) and hydroxyl content (3.2.8).

4.6 Reports:

The supplier of fluid shall furnish with each shipment a report from the manufacturer, showing the results of tests to determine conformance to the technical requirements. This report shall include the purchase order number, lot number, AMS 3021C, manufacturer's identification, and quantity.

4.6.1 A material safety data sheet conforming to AMS 2825, or equivalent, shall be supplied to each purchaser prior to, or with the first shipment of fluid.

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

5.1.2 The fluid shall be packaged in airtight containers of such size and design as to keep ullage to a minimum.

5.1.3 Each container of fluid shall be legibly identified, with not less than the following information on an attached label, using characters which will not be obliterated by normal handling:

FLUID, REFERENCE, FOR TESTING DI-ESTER (POLYOL) RESISTANT MATERIAL
AMS 3021C
PURCHASE ORDER NUMBER_____
MANUFACTURER'S IDENTIFICATION_____
LOT (OR BATCH) NUMBER_____
QUANTITY_____
APPROPRIATE WARNINGS OR PRECAUTIONARY NOTICES_____

5.1.4 Containers of fluid shall be prepared for shipment in accordance with 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.

6. ACKNOWLEDGMENT:

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