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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 2629B

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Superseding AMS 2629A

Fluid, Jet Reference

1. SCOPE:

1.1 Form:

This specification covers a mixture of liquid hydrocarbons and soluble additives.

1.2 Application:

To provide a standard composition, simulating aviation jet engine fuel. This fluid has been used typically in laboratory tests involving compatibility and interaction with aircraft materials, but usage is not limited to such applications.

1.3 Classification:

Jet reference fluid shall be classified as follows:

Type 1 - Liquid hydrocarbons without the addition of metal ions. Type 1 fluid is intended for use for material compatibility tests except for sealant chalking evaluations.

Type 2 - Liquid hydrocarbons with a controlled concentration of metal ions. Type 2 fluid is intended for use for sealant chalking tests.

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.:

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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 2825 Material Safety Data Sheets

2.2 ASTM Publications:

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

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 664	Neutralization Number by Potentiometric Titration
ASTM D 1266	Sulfur in Petroleum Products (Lamp Method)
ASTM D 2622	Sulfur in Petroleum Products by X-ray Spectrometry
ASTM D 3227	Mercaptan Sulfur in Gasoline, Kerosine, Aviation Turbine, and Distillate Fuels (Potentiometric Method)
ASTM D 4294	Sulfur in Petroleum Products by Non-Dispersive X-ray Fluorescence Spectrometry

2.3 U.S. Government Publications:

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

TT-S-735	Standard Test Fluids, Hydrocarbon
TT-T-548	Toluene (Technical)
FED-STD-791	Lubricant, Liquid Fuel, and Related Products, Methods of Testing
MIL-STD-290	Packaging of Petroleum and Related Products

3. TECHNICAL REQUIREMENTS:

3.1 Material:

3.1.1 Type 1 fluid shall conform to the percentages by volume shown in Table 1, determined by wet chemical methods, by x-ray chromatographic or spectrographic procedures, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Ingredients	Percent by Volume
Toluene, TT-T-548	28 ± 1
Cyclohexane, Technical grade	34 ± 1
Isooctane, TT-S-735, Type I	38 ± 1
Tertiary dibutyl disulfide, doctor sweet	See 3.1.1.1
Tertiary butyl mercaptan	See 3.1.1.2

3.1.1.1 Sufficient amount of tertiary dibutyl disulfide to provide a total sulfur concentration of 0.42% by weight ± 0.02, determined in accordance with ASTM D 1266, ASTM D 2622, or ASTM D 4294.

3.1.1.2 Sufficient amount of tertiary butyl mercaptan to provide a mercaptan sulfur concentration of 0.005% by weight ± 0.0005, determined in accordance with ASTM D 3227.

3.1.1.3 The fluid shall be stored out of contact with light in containers which are inert to the fluid ingredients (See 5.1.1). If not used within 90 days after blending, the fluid shall be retested for mercaptan and total sulfur content.

3.1.1.4 The fluid shall be stored below 80 °F (27 °C).

3.1.2 Type 2 fluid shall be produced by blending the individual components of Type 1 fluid in amber glass containers and then adding 0.50 ppm by weight of copper and cadmium ions.

3.1.2.1 Prior to blending in the copper and cadmium ions, the admixture shall contain less than 0.05 ppm by weight copper or cadmium, determined by wet chemical methods or by spectrographic procedures designed to analyze trace quantities of metals in organic mixtures.

3.1.2.2 The copper and cadmium ions shall be added from a standard reference concentrate containing copper and cadmium naphthenates dissolved in a mixture certified to contain 500 ppm by weight copper and 500 ppm by weight cadmium. Add 1.0 mL of this concentrate to 999 mL of the other five components.

3.1.2.3 Type 2 fluid shall be stored out of contact with metals (See 5.1.2).

3.1.2.4 The fluid shall be stored below 80 °F (27 °C).

3.2 Properties:

Fluid shall conform to the following requirements:

3.2.1 Color: Shall be no darker than +25 (Saybolt Chromometer), determined in accordance with ASTM D 156.

3.2.2 Acid and Base Number: Shall not exceed 0.10, determined in accordance with ASTM D 664.

3.2.3 Copper Strip Corrosion: Shall not exceed classification No. 1, determined in accordance with ASTM D 130 at 120 °F (49 °C).

3.2.4 Water Tolerance: The fluid shall separate sharply from the water layer, and there shall be no evidence of emulsion, precipitate, or suspended matter within or on either layer, determined in accordance with FED-STD-791, Method 3251. Neither layer shall have changed in volume by more than 2 milliliters.

3.3 Quality:

The fluid, as received by purchaser, shall be a clear, homogeneous liquid free from solid particles and from other foreign materials detrimental to usage of the fluid.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of 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 deemed necessary to ensure that the fluid conforms to the requirements of this specification.

4.2 Classification of Tests:

Tests for 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 material 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 the following:

4.3.1 For Acceptance Tests: Each lot of fluid shall be visually examined for quality (3.3) and sampled at random for all other tests; 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.

4.3.1.1 A lot shall be all fluid produced in one continuous manufacturing operation from the same batches of raw materials and presented for vendor's inspection at one time.

4.3.1.2 When a statistical sampling plan has been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5 shall state that such plan was used.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor.

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 Vendor shall use ingredients, manufacturing procedures, processes, 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 or processing, in type of equipment for processing, or in manufacturing procedures, vendor 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 vendor of fluid shall furnish with each shipment a report showing the results of tests to determine conformance to the technical requirements. This report shall include the purchase order number, lot number, AMS 2629B, vendor's material identification, 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 specimen 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 specimens for each original nonconforming specimen. Failure of any retest specimen 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 Type 1 fluid shall be packaged in containers, such as welded aluminum, non-galvanized welded steel, or glass, which are inert to the fluid ingredients.

5.1.2 Type 2 fluid shall be packaged in amber glass containers only.