



AEROSPACE MATERIAL SPECIFICATION

AMS2629™

REV. F

Issued	1989-07
Reaffirmed	2001-01
Revised	2020-03

Superseding AMS2629E

Fluid, Jet Reference

RATIONALE

Limited scope revision to amend the shelf life interval requirement.

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 is intended for use 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 all material compatibility tests except chalking evaluations.

Type 2 Liquid hydrocarbons with a controlled concentration of metal ions. Type 2 fluid is intended for chalking evaluations.

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

1.4 Safety - Hazardous Materials

Shall be in accordance with AS5502 (1.1).

2. APPLICABLE DOCUMENTS

Shall be in accordance with AS5502 (Section 2).

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS5502 Standard Requirements for Aerospace Sealants and Adhesion Promoters

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2020 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

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
<http://www.sae.org>

SAE WEB ADDRESS:

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2629F>

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 D130	Standard Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
ASTM D156	Standard Test Method for Saybolt Color of Petroleum Products (Saybolt Chromometer Method)
ASTM D664	Standard Test Method for Acid Number of Petroleum Products by Potentiometric Titration
ASTM D1094	Standard Test Method for Water Reaction of Aviation Fuels
ASTM D1266	Standard Test Method for Sulfur in Petroleum Products (Lamp Method)
ASTM D1319	Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption
ASTM D1655	Standard Specification for Aviation Turbine Fuels
ASTM D2622	Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry
ASTM D3227	Standard Test Method for (Thiol Mercaptan) Sulfur in Gasoline, Kerosine, Aviation Turbine, and Distillate Fuels (Potentiometric Method)
ASTM D3242	Standard Test Method for Acidity in Aviation Turbine Fuel
ASTM D4294	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry
ASTM D5006	Standard Test Method for Measurement of Fuel System Icing Inhibitors (Ether Type) in Aviation Fuels
ASTM D6379	Standard Test Method for Determination of Aromatic Hydrocarbon Types in Aviation Fuels and Petroleum Distillates - High Performance Liquid Chromatography Method with Refractive Index Detection

2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-PRF-25017	Inhibitor, Corrosion / Lubricity Improver, Fuel Soluble
MIL-DTL-85470	Inhibitor, Icing, Fuel System, High Flash NATO Code Number S-1745

3. TECHNICAL REQUIREMENTS

3.1 Standard Tolerances

Unless otherwise specified, standard tolerances shown in Table 1 shall apply:

Table 1 - Standard tolerances

Measurement Units	Tolerance
Temperature	±2 °F (±1 °C)
Day	±2 hours
Hour	±5 minutes
Minute	±10 seconds
Inches (mm)	±0.010 inch (±0.25 mm)

3.2 Material

3.2.1 Type 1 Fluid

The individual hydrocarbon and aromatic constituents of Type 1 fluid shall conform to the percentages by volume shown in Table 2 determined by wet chemical methods or by other analytical methods acceptable to purchaser. The total volume or mass percent of all fluid constituents shall conform to the percentages shown in Table 2, independent of initial Jet A constituent values, determined in accordance with the indicated test procedures.

Table 2 - Fluid composition

Constituents		Volume %	Mass %	Test Procedures
Jet A Fuel ¹	Total	73.8 ± 1		ASTM D1655 (Remainder)
Aromatics	Total	25 ± 1 ²		ASTM D1319 or ASTM D6379
Sulfur	Di-Tert-Butyl Disulfide (CAS 110-06-5)	1.02 ³	0.42 ± 0.02	ASTM D4294, ASTM D1266, or ASTM D2622
Mercaptan	1-Decanethiol (CAS 143-10-2)	0.026 ³	0.005 ± 0.0005	ASTM D3227
Fuel System Icing Inhibitor	MIL-DTL-85470	0.11 ± 0.02		ASTM D5006
Lubricity Improver/Corrosion Inhibitor ⁴	MIL-PRF-25017	0.0017 ± 0.0002		

¹ Jet A fuel levels of the constituents listed should be verified before addition of reference fluid components. Final fluid composition must meet Table 2 requirements.

² Aromatic content of as-received Jet A fuel shall be adjusted to the required volume percent by adding the aromatic blend identified in Table 3.

³ Volume percent provided as estimate to achieve mass percent; mass percent shall be measured.

⁴ Unisor J was used in initial test program.

Table 3 - Aromatic blend

Constituents ^{1, 2}	Volume %
Aromatic 100	30% ± 0.5%
Aromatic 150	60% ± 0.5%
Aromatic 200	10% ± 0.5%

¹ Aromatic 100, 150, and 200 manufactured and distributed by ExxonMobil.

² Aromatic products marketed under the tradename Solvesso™ outside of North America.

3.2.1.1 The fluid shall be stored out of contact with light in containers which are inert to the fluid ingredients (see 5.1.1).

3.2.1.2 The fluid shall be stored below 80 °F (27 °C). Refrigeration at 40 °F (4 °C) of the fuel is not required but is recommended to maximize constituent stability.

3.2.2 Type 2 Fluid

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 each of copper and cadmium ions.