

MIL-F-16884H
AMENDMENT 2
4 December 1985
SUPERSEDING
AMENDMENT 1
10 December 1984

MILITARY SPECIFICATION
FUEL, NAVAL DISTILLATE

This amendment forms a part of MIL-F-16884H, dated 3 May 1983, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGES 2 AND 3

* 2.2, under "AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)": Delete reference to "ASTM D 2709" and add the following:

- "D 2276 - Particulate Contaminant in Aviation Turbine Fuels, Test Method for. (DoD adopted)
- D 2880 - Gas Turbine Fuel Oils, Standard Specification for.
- D 4176 - Free Water and Particulate Contamination in Distillate Fuels (Clear and Bright Pass/Fail Procedures), Test Method for.
- D 4294 - Sulfur in Petroleum Products by Non-Dispersive X-Ray Fluorescence Spectrometry, Test Method for."

PAGE 3

3.2: Delete and substitute:

"3.2 Material. The fuel supplied under this specification shall be distillate fuel refined from petroleum crude oil."

3.2.2: Delete "(a) N, N' - diisopropyl-para-phenylenediamine" and "(b) N, N' - disecundary butyl-para-phenylenediamine".

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PAGES 4 and 5

* Table I: Delete and substitute:

"TABLE I. Chemical and physical requirements.

Characteristics	Requirements	FED-STD-791 test method	ASTM test method
Ignition quality, cetane number (min) (see 4.5.1)	45		D 613
Appearance at 25°C (75°F) or ambient temperature whichever is higher	Clear and bright		D 4176
Distillation:			
10 percent point, °C (°F)	Record		
50 percent point, °C (°F)	Record		
90 percent point, °C (°F) (max)	357°C (675°F)		D 86
End point, °C (°F) (max) ^{1/}	385°C (725°F)		
Residue plus loss, percent (max)	3.0		
Flash point, °C (°F) (min)	60°C (140°F)		D 93
Pour point, °C (°F) (max)	-6°C (20°F) ^{4/}		D 97
Cloud point, °C (°F) (max)	-1°C (30°F) ^{4/}		D 2500
Viscosity at 40°C (104°F)	1.7 - 4.3		D 445
Kinematic, centistokes			
Carbon residue, on 10 percent bottoms, percent (max) (see 4.5.2)	0.20		D 524
Sulfur, percent (max)	1.00		^{2/} D 129
Corrosion (max) at 100°C (212°F)	No. 1 ASTM		D 130
Color (max)	3		D 1500
Ash, percent (max)	0.005		D 482
Particulate contamination, mg/liter, (max)	10		D 2276
Trace metals (max)			(Appendix A2)
Vanadium	Record		
Sodium plus potassium	Record		
Calcium	Record		
Lead	Record		D 3605
Gravity (hydrometer)	Record		^{3/} D 1298
Demulsification at 25°C (77°F), minutes (max) (see 4.5.3)	10		D 1401
Acid number (max)	0.30		D 974
Neutrality	Neutral	5101	-----
Aniline point, °C (°F)	Record		D 611
Accelerated stability, total insolubles mg/100 mL (max)	^{5/} 1.5		D 2274

See footnotes at top of next page.

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- 1/ As the end point of the distillation is approached, if either a thermometer reading 385°C (725°F) or a decomposition point is observed, discontinue the heating and resume the procedure as directed in ASTM D 86.
- 2/ ASTM D 1552, ASTM D 4294, and ASTM D 2622 may be used as alternative methods.
- 3/ ASTM D 287 may be used as an alternative method.
- 4/ The ASTM methods for pour and cloud points permit optional use of either Celsius or Fahrenheit procedures; therefore requirements are specified for either option.
- 5/ Average of three determinations is acceptable. Fuel designated for long term storage (greater than 6 months) shall have an accelerated stability of 0.5 mg/100 mL (max) prior to addition of any stability additive. The stability additive shall have the prior approval of the preparing activity.
- 6/ ASTM D 2276 shall be used to determine particle contamination."

PAGE 6

4.5.1: Delete and substitute:

"4.5.1 Ignition quality. To determine cetane quality, ASTM D 613 shall be used. The resulting cetane number shall be 45 minimum. ASTM D 976 may be used as an alternative. The minimum cetane index shall be 46. Where cetane index is used the value shall be reported as the cetane index."

NOTE: The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

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Army - ME
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Preparing activity:
Navy - SH
(Project 9140-0109)

Review activities:
Navy - YD, SA
DLA - PS

User activity:
Navy - MC