Designation: D 975 – 03

An American National Standard

Standard Specification for Diesel Fuel Oils[1]

This standard is issued under the fixed designation D 975; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers five grades of diesel fuel oils suitable for various types of diesel engines. These grades are described as follows:

1.1.1 *Grade Low Sulfur No. 1-D*—A special-purpose, light distillate fuel for automotive diesel engines requiring low sulfur fuel and requiring higher volatility than that provided by Grade Low Sulfur No. 2-D.[2]

1.1.2 *Grade Low Sulfur No. 2-D*—A general-purpose, middle distillate fuel for automotive diesel engines requiring low sulfur fuel. It is also suitable for use in non-automotive applications, especially in conditions of varying speed and load.[2]

1.1.3 *Grade No. 1-D*—A special-purpose, light distillate fuel for automotive diesel engines in applications requiring higher volatility than that provided by Grade No. 2-D fuels.

1.1.4 *Grade No. 2-D*—A general-purpose, middle distillate fuel for automotive diesel engines, which is also suitable for use in non-automotive applications, especially in conditions of frequently varying speed and load.

1.1.5 *Grade No. 4-D*—A heavy distillate fuel, or a blend of distillate and residual oil, for low- and medium-speed diesel engines in non-automotive applications involving predominantly constant speed and load.

NOTE 1—A more detailed description of the grades of diesel fuel oils is given in X1.2.

1.2 This specification, unless otherwise provided by agreement between the purchaser and the supplier, prescribes the required properties of diesel fuels at the time and place of delivery.

1.2.1 Nothing in this specification shall preclude observance of federal, state, or local regulations which may be more restrictive.

NOTE 2—The generation and dissipation of static electricity can create problems in the handling of distillate diesel fuel oils. For more information on the subject, see Guide D 4865.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:*

D 56 Test Method for Flash Point by Tag Closed Tester[3]

D 86 Test Method for Distillation of Petroleum Products at Atmospheric Pressure[3]

D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester[3]

D 97 Test Method for Pour Point of Petroleum Products[3]

D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)[3]

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test[3]

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)[3]

D 482 Test Method for Ash from Petroleum Products[3]

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products[3]

D 613 Test Method for Cetane Number of Diesel Fuel Oil[3]

D 976 Test Methods for Calculated Cetane Index of Distillate Fuels[3]

D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)[3]

D 1319 Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption[3]

D 1500 Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)[3]

D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)[3]

D 1796 Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)[3]

D 2274 Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)[3]

[1] This specification is under the jurisdiction of ASTM Committee is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.E0 on Burner, Diesel, Non–Aviation Gas Turbine, and Marine Fuels.

Current edition approved May 10, 2003. Published July 2003. Originally approved in 1948. Last previous edition approved in 2002 as D 975–02.

[2] This fuel complies with 40 CFR Part 80—Regulation of Fuels and Fuel Additives: Fuel Quality Regulations for Highway Diesel Fuel Sold in 1993 and Later Calendar Years.

[3] *Annual Book of ASTM Standards*, Vol 05.01.

D 2276 Test Method for Particulate Contaminant in Aviation Fuel by Line Sampling[3]
D 2500 Test Method for Cloud Point of Petroleum Oils[3]
D 2622 Test Method for Sulfur in Petroleum Products by X-Ray Spectrometry[3]
D 2709 Test Method for Water and Sediment in Distillate Fuels by Centrifuge[3]
D 2880 Specification for Gas Turbine Fuel Oils[3]
D 3117 Test Method for Wax Appearance Point of Distillate Fuels[3]
D 3120 Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry[3]
D 3828 Test Methods for Flash Point by Small Scale Closed Tester[4]
D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products[4]
D 4294 Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectroscopy[4]
D 4539 Test Method for Filterability of Diesel Fuels by Low Temperature Flow Test (LTFT)[4]
D 4737 Test Method for Calculated Cetane Index by Four Variable Equation[4]
D 4865 Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems[4]
D 5453 Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence[5]
D 5771 Test Method for Cloud Point of Petroleum Products (Optical Detection Stepped Cooling Method)[5]
D 5772 Test Method for Cloud Point of Petroleum Products (Linear Cooling Rate Method)[5]
D 5773 Test Method for Cloud Point of Petroleum Products (Constant Cooling Rate Method)[5]
D 6078 Test Method for Evaluating Lubricity of Diesel Fuels by the Scuffing Load Ball–on–Cylinder Lubricity Evaluation (SLBOCLE)[5]
D 6079 Test Method for Evaluating Lubricity of Diesel Fuels by the High–Frequency Reciprocating Rig (HFFR)[5]
D 6217 Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration[5]
D 6371 Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels[6]
D 6468 Test Method for High Temperature Stability of Distillate Fuels[6]
D 6469 Guide for Microbial Contamination in Fuels and Fuel Systems[6]

2.2 *Other Documents:*

26 CFR Part 48 Manufacturers and Realtors Excise Taxes[7]
40 CFR Part 80 Regulation of Fuels and Fuel Additives[7]
IP 309 Diesel and Domestic Heating Fuels—Determination of Cold Filter Plugging Point[8]

3. Test Methods

3.1 The requirements enumerated in this specification shall be determined in accordance with the following methods:

3.1.1 *Flash Point*—Test Methods D 93, except where other methods are prescribed by law. For all grades, Test Method D 3828 can be used as an alternate with the same limits. For Grades Low Sulfur No. 1-D, Low Sulfur No. 2-D, No. 1-D, and No. 2-D, Test Method D 56 can be used as an alternate with the same limits, provided the flash point is below 93°C and the viscosity is below 5.5 mm^2/s at 40°C. This test method will give slightly lower values. In cases of dispute, Test Methods D 93 shall be used as the referee method.

3.1.2 *Cloud Point*—Test Method D 2500. For all grades, the automatic Test Methods D 5771, D 5772, or D 5773 can be used as alternates with the same limits. Test Method D 3117 can also be used since it is closely related to Test Method D 2500. In case of dispute, Test Method D 2500 shall be the referee method.

3.1.3 *Water and Sediment*—Test Method D 2709 is used for Grades Low Sulfur No. 1-D, Low Sulfur No. 2-D, No. 1-D, and No. 2-D. Test Method D 1796 is used for Grade No. 4-D.

3.1.4 *Carbon Residue*—Test Method D 524.

3.1.5 *Ash*—Test Method D 482.

3.1.6 *Distillation of Low Sulfur No. 1-D, Low Sulfur No. 2-D, No. 1-D, and No. 2-D Fuel Oils*—Test Method D 86.

3.1.7 *Viscosity*—Test Method D 445.

3.1.8 *Sulfur*—Test Method D 2622 is used for Grades Low Sulfur No. 1-D and Low Sulfur No. 2-D. Test Methods D 1266, D 3120 and D 4294 are also suitable for determining up to 0.05 % sulfur in diesel fuels. Test Method D 129 is used for Grades No. 1-D, No. 2-D and No. 4-D. Test Methods D 1552, D 2622, and D 4294 can also be used for these grades. In addition, Test Method D 1266 can be used for Grade No. 1, but only with samples having sulfur contents of 0.4 mass % and less (down to 0.01 %). Test Method D 5453 can be used for Grades 1 and 2 diesel fuels, but only with samples having sulfur contents of 0.8 mass % and less (down to 0.0001 %). In case of dispute, Test Method D 2622 is the referee sulfur test method for Grades Low Sulfur No. 1-D and Low Sulfur No. 2-D. Test Method D 129 is the referee sulfur test method for Grades No. 1-D, No. 2-D, and No. 4-D.

3.1.9 *Corrosion*—Test Method D 130, 3 h test at 50°C.

3.1.10 *Cetane Number*—Test Method D 613.

3.1.11 *Cetane Index*—Test Methods D 976–80.

3.1.12 *Aromaticity*—Test Method D 1319. This test method provides an indication of the aromatics content of fuels. For fuels with a maximum final boiling point of 315°C, this method is a measurement of the aromatic content of the fuel.

4. Workmanship

4.1 The diesel fuel shall be visually free of undissolved water, sediment, and suspended matter.

[4] *Annual Book of ASTM Standards*, Vol 05.02.
[5] *Annual Book of ASTM Standards*, Vol 05.03.
[6] *Annual Book of ASTM Standards*, Vol 05.04.
[7] Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.
[8] Available from Institute of Petroleum (IP), 61 New Cavendish St., London, WIG 7AR, U.K.

5. Requirements

5.1 The grades of diesel fuel oils herein specified shall be hydrocarbon oils conforming to the detailed requirements shown in Table 1.

5.2 *Grades No. 2-D and Low Sulfur No. 2–D*—When a cloud point less than −12°C is specified, the minimum flash point shall be 38°C, the minimum viscosity at 40°C shall be 1.7 mm^2/s, and the minimum 90 % recovered temperature shall be waived.

6. Keywords

6.1 diesel; fuel oil; petroleum and petroleum products; specification

TABLE 1 Detailed Requirements for Diesel Fuel Oils[A]

Property	ASTM Test Method[B]	Grade Low Sulfur No. 1-D[C]	Grade Low Sulfur No. 2-D[C,D]	Grade No. 1-D[E]	Grade No. 2-D[D,E]	Grade No. 4-D[E]
Flash Point, °C, min.	D 93	38	52[D]	38	52[D]	55
Water and Sediment, % vol, max	D 2709	0.05	0.05	0.05	0.05	...
	D 1796	...	...	...	...	0.50
Distillation Temperature, °C 90 % % vol Recovered	D 86					
min		...	282[D]	...	282[D]	...
max		288	338	288	338	...
Kinematic Viscosity, mm^2/S at 40°C	D 445					
min.		1.3	1.9[D]	1.3	1.9[D]	5.5
max	...	2.4	4.1	2.4	4.1	24.0
Ash % mass, max	D 482	0.01	0.01	0.01	0.01	0.10
Sulfur, % mass, max[F]	D 2622[G]	0.05	0.05	...	...	...
	D 129	...	...	0.50	0.50	2.00
Copper strip corrosion rating max 3 h at 50°C	D 130	No. 3	No. 3	No. 3	No. 3	...
Cetane number, min[H]	D 613	40[I]	40[I]	40[I]	40[I]	30[I]
One of the following properties must be met:						
(1) Cetane index, min.	D 976[G]	40	40	...	...	...
(2) Aromaticity, % vol, max	D 1319[G]	35	35	...	...	...
Operability Requirements						
Cloud point, °C, max	D 2500	[J]	[J]	[J]	[J]	[J]
or						
LTFT/CFPP, °C, max	D 4539/ D 6371					
Ramsbottom carbon residue on 10 % distillation residue, % mass, max	D 524	0.15	0.35	0.15	0.35	...

[A] To meet special operating conditions, modifications of individual limiting requirements may be agreed upon between purchaser, seller, and manufacturer.

[B] The test methods indicated are the approved referee methods. Other acceptable methods are indicated in 3.1.

[C] Under United States regulations, if Grades Low Sulfur No. 1-D or Low Sulfur No. 2-D are sold for tax exempt purposes then, at or beyond terminal storage tanks, they are required by 26 CFR Part 48 to contain the dye Solvent Red 164 at a concentration spectrally equivalent to 3.9 lb per thousand barrels of the solid dye standard Solvent Red 26, or the tax must be collected.

[D] When a cloud point less than − 12°C is specified, the minimum flash point shall be 38°C, the minimum viscosity at 40°C shall be 1.7 mm^2/s, and the minimum 90 % recovered temperature shall be waived.

[E] Under United States regulations, Grades No.1–D, No. 2–D, and No. 4–D are required by 40 CFR Part 80 to contain a sufficient amount of the dye Solvent Red 164 so its presence is visually apparent. At or beyond terminal storage tanks, they are required by 26 CFR Part 48 to contain the dye Solvent Red 164 at a concentration spectrally equivalent to 3.9 lb per thousand barrels of the solid dye standard Solvent Red 26.

[F] Other sulfur limits can apply in selected areas in the United States and in other countries.

[G] These test methods are specified in 40 CFR Part 80.

[H] Where cetane number by Test Method D 613 is not available, Test Method D 4737 can be used as an approximation.

[I] Low ambient temperatures as well as engine operation at high altitudes may require the use of fuels with higher cetane ratings.

[J] It is unrealistic to specify low temperature properties that will ensure satisfactory operation at all ambient conditions. In general, cloud point (or wax appearance point) Low Temperature Flow Test, and Cold Filter Plugging Point Test may be used as an estimate of operating temperature limits for Grades Low Sulfur No. 1; Low Sulfur No. 2; and No. 1 and No. 2 diesel fuel oils. However, satisfactory operation below the cloud point (or wax appearance point) may be achieved depending on equipment design, operating conditions, and the use of flow-improver additives as described in X4.1.2. Appropriate low temperature operability properties should be agreed upon between the fuel supplier and purchaser for the intended use and expected ambient temperatures. Test Methods D 4539 and D 6371 may be especially useful to estimate vehicle low temperature operability limits when flow improvers are used. Due to fuel delivery system, engine design, and test method differences, low temperature operability tests may not provide the same degree of protection in various vehicle operating classes. Tenth percentile minimum air temperatures for U.S. locations are provided in Appendix X4 as a means of estimating expected regional temperatures. The tenth percentile minimum air temperatures may be used to estimate expected regional target temperatures for use with Test Methods D 2500, D 4539, and D 6371. Refer to X4.1.3 for further general guidance on test application.

APPENDIXES

(Nonmandatory Information)

X1. SIGNIFICANCE OF ASTM SPECIFICATION FOR DIESEL FUEL OILS

X1.1 Introduction

X1.1.1 The properties of commercial fuel oils depend on the refining practices employed and the nature of the crude oils from which they are produced. Distillate fuel oils, for example, may be produced within the boiling range of 150 and 400°C having many possible combinations of various properties, such as volatility, ignition quality, viscosity, and other characteristics.

X1.2 Grades

X1.2.1 This specification is intended as a statement of permissible limits of significant fuel properties used for specifying the wide variety of commercially available diesel fuel oils. Limiting values of significant properties are prescribed for five grades of diesel fuel oils. These grades and their general applicability for use in diesel engines are broadly indicated as follows:

X1.2.2 *Grade Low Sulfur No. 1-D*—Grade Low Sulfur No. 1-D comprises the class of low-sulfur, volatile fuel oils from kerosine to the intermediate distillates. Fuels within this grade are applicable for use in high-speed engines that require low sulfur fuel and in services involving frequent and relatively wide variations in loads and speeds, and also for use in cases where abnormally low fuel temperatures are encountered.

X1.2.3 *Grade Low Sulfur No. 2-D*—Grade Low Sulfur No. 2-D includes the class of low-sulfur, distillate gas oils of lower volatility than Grade Low Sulfur No. 1-D. These fuels are applicable for use in high-speed engines that require low sulfur fuels and in services involving relatively high loads and uniform speeds, or in engines not requiring fuels having the higher volatility or other properties specified for Grade Low Sulfur No. 1-D.

X1.2.4 *Grade No. 1-D*—Grade No. 1-D comprises the class of volatile fuel oils from kerosine to the intermediate distillates. Fuels within this grade are applicable for use in high-speed engines in services involving frequent and relatively wide variations in loads and speeds, and also for use in cases where abnormally low fuel temperatures are encountered.

X1.2.5 *Grade No. 2-D*—Grade No. 2-D includes the class of distillate gas oils of lower volatility. These fuels are applicable for use in high-speed engines in services involving relatively high loads and uniform speeds, or in engines not requiring fuels having the higher volatility or other properties specified for Grade No. 1-D.

X1.2.6 *Grade No. 4-D*—Grade No. 4-D covers the class of more viscous distillates and blends of these distillates with residual fuel oils. These fuels are applicable for use in low- and medium-speed engines employed in services involving sustained loads at substantially constant speed.

X1.3 Selection of Particular Grade

X1.3.1 The selection of a particular diesel fuel oil from one of these three ASTM grades for use in a given engine requires consideration of the following factors:

X1.3.1.1 Fuel price and availability,

X1.3.1.2 Maintenance considerations,

X1.3.1.3 Engine size and design,

X1.3.1.4 Emission control systems,

X1.3.1.5 Speed and load ranges,

X1.3.1.6 Frequency of speed and load changes, and

X1.3.1.7 Atmospheric conditions. Some of these factors can influence the required fuel properties outlined as follows:

X1.4 Cetane Number

X1.4.1 Cetane number is a measure of the ignition quality of the fuel and influences combustion roughness. The cetane number requirements depend on engine design, size, nature of speed and load variations, and on starting and atmospheric conditions. Increase in cetane number over values actually required does not materially improve engine performance. Accordingly, the cetane number specified should be as low as possible to assure maximum fuel availability.

X1.5 Distillation

X1.5.1 The fuel volatility requirements depend on engine design, size, nature of speed and load variations, and starting and atmospheric conditions. For engines in services involving rapidly fluctuating loads and speeds as in bus and truck operation, the more volatile fuels may provide best performance, particularly with respect to smoke and odor. However, best fuel economy is generally obtained from the heavier types of fuels because of their higher heat content.

X1.6 Viscosity

X1.6.1 For some engines it is advantageous to specify a minimum viscosity because of power loss due to injection pump and injector leakage. Maximum viscosity, on the other hand, is limited by considerations involved in engine design and size, and the characteristics of the injection system.

X1.7 Carbon Residue

X1.7.1 Carbon residue gives a measure of the carbon depositing tendencies of a fuel oil when heated in a bulb under prescribed conditions. While not directly correlating with engine deposits, this property is considered an approximation.

X1.8 Sulfur

X1.8.1 The effect of sulfur content on engine wear and deposits appears to vary considerably in importance and depends largely on operating conditions. Fuel sulfur can affect emission control systems performance. To assure maximum availability of fuels, the permissible sulfur content should be specified as high as is practicable, consistent with maintenance considerations.

X1.9 Flash Point

X1.9.1 The flash point as specified is not directly related to engine performance. It is, however, of importance in connection with legal requirements and safety precautions involved in fuel handling and storage, and is normally specified to meet insurance and fire regulations.

X1.10 Cloud Point

X1.10.1 Cloud point is of importance in that it defines the temperature at which a cloud or haze of wax crystals appears in the oil under prescribed test conditions which generally relates to the temperature at which wax crystals begin to precipitate from the oil in use.

X1.11 Ash

X1.11.1 Ash-forming materials may be present in fuel oil in two forms: *(1)* abrasive solids, and *(2)* soluble metallic soaps. Abrasive solids contribute to injector, fuel pump, piston and ring wear, and also to engine deposits. Soluble metallic soaps have little effect on wear but may contribute to engine deposits.

X1.12 Copper Strip Corrosion

X1.12.1 This test serves as a measure of possible difficulties with copper and brass or bronze parts of the fuel system.

X1.13 Aromaticity

X1.13.1 This test is used as an indication of the aromatic contents of diesel fuel. Aromatic content is specified to prevent an increase in the average aromatics in Grades Low Sulfur No.

1-D and Low Sulfur No. 2-D fuels. Increases in aromatic content of fuels over current levels may have a negative impact on emissions.

X1.14 Cetane Index

X1.14.1 Cetane Index is specified as a limitation on the amount of high aromatic components in Grades Low Sulfur No. 1-D and Low Sulfur No. 2-D.

X1.15 Other

X1.15.1 *Microbial Contamination*—Refer to Guide D 6469 for a discussion of this form of contamination.

X2. STORAGE AND THERMAL STABILITY OF DIESEL FUELS

X2.1 Scope

X2.1.1 This appendix provides guidance for consumers of diesel fuels who may wish to store quantities of fuels for extended periods or use the fuel in severe service or high temperature applications. Fuels containing residual components are excluded. Consistently successful long-term fuel storage or use in severe applications requires attention to fuel selection, storage conditions, handling and monitoring of properties during storage and prior to use.

X2.1.2 Normally produced fuels have adequate stability properties to withstand normal storage and use without the formation of troublesome amounts of insoluble degradation products. Fuels that are to be stored for prolonged periods or used in severe applications should be selected to avoid formation of sediments or gums, which can overload filters or plug injectors. Selection of these fuels should result from supplier-user discussions.

X2.1.3 These suggested practices are general in nature and should not be considered substitutes for any requirements imposed by the warranty of the distillate fuel equipment manufacturer or by federal, state, or local government regulations. Although they cannot replace a knowledge of local conditions or good engineering and scientific judgment, these suggested practices do provide guidance in developing an individual fuel management system for the middle distillate fuel user. They include suggestions in the operation and maintenance of existing fuel storage and handling facilities and for identifying where, when, and how fuel quality should be monitored or selected for storage or severe use.

X2.2 Definitions

X2.2.1 *bulk fuel*—fuel in the storage facility.

X2.2.2 *fuel contaminants*—foreign materials that make fuel less suitable or unsuitable for the intended use.

X2.2.2.1 *Discussion*—Fuel contaminants include materials introduced subsequent to the manufacture of fuel and fuel degradation products.

X2.2.3 *fuel-degradation products*—those materials that are formed in fuel during extended storage or exposure to high temperatures.

X2.2.3.1 *Discussion*—Insoluble degradation products may combine with other fuel contaminants to reinforce deleterious effects. Soluble degradation products (soluble gums) are less volatile than fuel and may carbonize to form deposits due to complex interactions and oxidation of small amounts of olefinic or sulfur-, oxygen- or nitrogen-containing compounds present in fuels. The formation of degradation products may be catalyzed by dissolved metals, especially copper salts. When dissolved copper is present it can be deactivated with metal deactivator additives.

X2.2.4 *long-term storage*—storage of fuel for longer than 12 months after it is received by the user.

X2.2.5 *severe use*—use of the fuel in applications which may result in engines operating under high load conditions that may cause the fuel to be exposed to excessive heat.

X2.3 Fuel Selection

X2.3.1 Certain distilled refinery products are generally more suitable for long-term storage and severe service than others. The stability properties of middle distillates are highly dependent on the crude oil sources, severity of processing, use of additives and whether additional refinery treatment has been carried out.

X2.3.2 The composition and stability properties of middle distillate fuels produced at specific refineries may be different. Any special requirements of the user, such as long-term storage or severe service, should be discussed with the supplier.

X2.3.3 Blends of fuels from various sources may interact to give stability properties worse than expected based on the characteristics of the individual fuels.

X2.4 Fuel Additives

X2.4.1 Available fuel additives can improve the suitability of marginal fuels for long-term storage and thermal stability, but may be unsuccessful for fuels with markedly poor stability properties. Most additives should be added at the refinery or during the early weeks of storage to obtain maximum benefits.

X2.4.2 Biocides or biostats destroy or inhibit the growth of fungi and bacteria, which can grow at fuel-water interfaces to give high particulate concentrations in the fuel. Available biocides are soluble in both the fuel and water or in the water phase only.

X2.5 Tests for Fuel Quality

X2.5.1 At the time of manufacture, the storage stability of fuel may be assessed using Test Method D 2274 or D 5304. However, these accelerated stability tests may not correlate well with field storage stability due to varying field conditions and to fuel composition.

X2.5.2 Performance criteria for accelerated stability tests that assure satisfactory long-term storage of fuels have not been established.