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An American National Standard

Standard Guide for Microbial Contamination in Fuels and Fuel Systems[1]

This standard is issued under the fixed designation D 6469; 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.

1. Scope

1.1 This guide provides personnel who have a limited microbiological background with an understanding of the symptoms, occurrence, and consequences of chronic microbial contamination. The guide also suggests means for detection and control of microbial contamination in fuels and fuel systems. This guide applies primarily to gasoline, aviation, boiler, industrial gas turbine, diesel, marine, and furnace fuels (see Specifications D 396, D 910, D 975, D 1655, D 2069, D 2880, D 3699, D 4814, and D 6227) and fuel systems. However, the principles discussed herein also apply generally to crude oil and all liquid petroleum fuels. ASTM Manual 47[2] provides a more detailed treatment of the concepts introduced in this guide; it also provides a compilation of all of the standards referenced herein that are not found in the *Annual Book of ASTM Standards*, Section Five on Petroleum Products and Lubricants.

1.2 This guide is not a compilation of all of the concepts and terminology used by microbiologists, but it does provide a general understanding of microbial fuel contamination.

1.3 The values in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [3]

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test
D 396 Specification for Fuel Oils
D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (the Calculation of Dynamic Viscosity)
D 515 Test Methods for Phosphorus in Water[4]
D 664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration
D 888 Test Methods for Dissolved Oxygen in Water
D 910 Specification for Aviation Gasolines
D 974 Test Method for Acid and Base Number by Color-Indicator Titration
D 975 Specification for Diesel Fuel Oils
D 1067 Test Methods for Acidity or Alkalinity of Water
D 1126 Test Method for Hardness in Water
D 1293 Test Methods of pH of Water
D 1298 Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
D 1331 Test Methods for Surface and Interfacial Tension of Solutions of Surface-Active Agents
D 1426 Test Methods for Ammonia Nitrogen in Water
D 1655 Specification for Aviation Turbine Fuels
D 1744 Test Method for Water in Liquid Petroleum Products by Karl Fischer Reagent[4]
D 1976 Test Method for Elements in Water by Inductively-Coupled Argon Plasma Atomic Emission Spectroscopy
D 2068 Test Method for Filter Blocking Tendency of Distillate Fuel Oils
D 2069 Specification for Marine Fuels[4]
D 2274 Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)
D 2276 Test Method for Particulate Contaminant in Aviation Fuel by Line Sampling
D 2880 Specification for Gas Turbine Fuel Oils
D 3240 Test Method for Undissolved Water in Aviation Turbine Fuels
D 3241 Test Method for Thermal Oxidation Stability of Aviation Turbine Fuels (JFTOT Procedure)
D 3242 Test Method for Acidity in Aviation Turbine Fuel
D 3325 Practice for Preservation of Waterborne Oil Samples

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.14 on Stability and Cleanliness of Liquid Fuels.

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[2] MNL 47, *Fuel and Fuel System Microbiology: Fundamentals, Diagnosis, and Contamination Control*, Passman, F. J., ed., ASTM International, 2003.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[4] Withdrawn.

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