



Designation: D8516 – 23

Standard Test Method for Quantification of Culturable Waterborne Bacteria Using a Defined Culture Medium Coated Plate¹

This standard is issued under the fixed designation D8516; 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 test method describes a simple procedure for the quantification of culturable, waterborne bacteria in potable water (drinking water, bottled water, and dental water, for example) and non-potable waters (cooling towers, for example).

1.1.1 The EasyDisc^{2,3} plate format is designed to test 1 mL of a water sample on a 47 mm gridded plate containing a growth reagent embedded to the plate's inner surface.

1.1.2 Detection is based on colorimetric technology in which viable, aerobic, heterotrophic, waterborne bacteria grow when present in the water sample, displaying a color reaction which allows for a simplified visualization of colony growth.

1.2 Each plate can accurately detect up to 300 colony forming units per 1 mL (CFU/1 mL) of sample. To increase the quantification range, a sample dilution can be used. Adjust the CFU/mL result to reflect dilutions.

1.3 This test method can be used for potable (for example, drinking, bottled, and dental) waters and non-potable waters such as cooling tower waters. It is the user's responsibility to adhere to all requirements by local regulations and ensure the validity of this test method for waters other than those tested as part of the Interlaboratory Study (ILS).

1.4 The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

¹ This test method is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.24 on Water Microbiology. Current edition approved July 1, 2023. Published August 2023. DOI: 10.1520/D8516-23.

² EasyDisc is a registered trademark of IDEXX Laboratories, Inc.

³ The sole source of supply of the apparatus known to the committee at this time is IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME, 04092, USA. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*⁴

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water

D3370 Practices for Sampling Water from Flowing Process Streams

2.2 *ISO Standard:*⁵

ISO 6222 Water quality—Enumeration of culturable microorganisms—Colony count by inoculation in a nutrient agar culture medium

2.3 *Standard Methods for the Examination of Water and Wastewater:*⁶

9060 Samples

9215 Heterotrophic Plate Count

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology D1129.

3.1.2 *ambient temperature, n*—temperature of the surroundings, generally assumed to be 20 °C to 25 °C.

3.1.3 *colony forming unit, CFU, n*—in microbiology, a visible mass of cells (algae, bacteria, or fungi) originating from either an individual cell or cluster of cells that have been placed onto or dispersed into a solid or semi-solid nutrient medium and subsequently incubated under prescribed conditions.

⁴ 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.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁶ Available online from <https://www.standardmethods.org/doi>.