



Standard Test Methods for Microbiological Monitoring of Water Used for Processing Electron and Microelectronic Devices by Direct Pressure Tap Sampling Valve and by the Presterilized Plastic Bag Method¹

This standard is issued under the fixed designation F1094; 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 These test methods cover sampling and analysis of high purity water from water purification systems and water transmission systems by the direct sampling tap and filtration of the sample collected in the bag. These test methods cover both the sampling of water lines and the subsequent microbiological analysis of the sample by the culture technique. The microorganisms recovered from the water samples and counted on the filters include both aerobes and facultative anaerobes.

1.2 Three methods are described as follows:

Test Method A—Sample Tap—Direct Filtration	Sections 6 to 8
Test Method B—Presterilized Plastic Bag Technique	9 to 12
Test Method B2 —Dip Strip Technique ² /Presterilized Plastic Bag	

1.3 *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 use².*

2. Referenced Documents

2.1 ASTM Standards:³

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

F60 Test Method for Detection and Enumeration of Microbiological Contaminants in Water Used for Processing

¹ These test methods are under the jurisdiction of ASTM Committee F01 on Electronics and are the direct responsibility of Subcommittee F01.10 on Contamination Control.

Current edition approved July 1, 2012. Published August 2012. Originally approved in 1987. Last previous edition approved in 2005 as F1094–87(2005). DOI: 10.1520/F1094-87R12.

² The dip strip (Total Count Tester or SPC Sampler) method is permissible for waters containing >10 microorganisms per milliliter.

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.

Electron and Microelectronic Devices (Withdrawn 1991)⁴
F488 Test Method for On-Site Screening of Heterotrophic Bacteria in Water (Withdrawn 2005)⁴

3. Terminology

3.1 Definitions:

3.1.1 *total bacteria count*—number of viable heterotrophic bacteria capable of growing under test conditions specified.

3.1.1.1 *Discussion*—Total bacteria count is the general term for heterotrophic plate count, now commonly used. Heterotrophic bacteria are those microorganisms that cannot use CO₂ for food. They require more complex organic compounds for use as growth nutrients. The majority of bacteria fall into this major grouping.

3.1.2 For definition of other terms used in this test method, refer to Terminology **D1129**.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *presterilized plastic bag*—a commercial presterilized plastic bag of 200-mL capacity (or as appropriate to larger sample sizes) to hold sample water. The bag should have integral fold over tabs to allow for resealing.

3.2.2 *bacteriological monitor*—a commercial presterilized plastic filter holder containing a 0.45- μ m membrane filter. (No other filter pore size should be used.)

NOTE 1—If a larger pore size filter is used, organisms may pass through the filter; a smaller pore size filter does not wick up sufficient growth media, hence the level of recovery will be less than that of the 0.45- μ m filter.

3.2.3 *total count tester*—a paddle shaped plastic filter assembly containing a 0.45- μ m membrane filter and dehydrated nutrient pad.

4. Summary of Test Method

4.1 *Test Method A—Sample Tap—Direct Filtration*—A sampling valve as or similar to that shown in **Fig. 1** is installed in

⁴ The last approved version of this historical standard is referenced on www.astm.org.