



Designation: D6908 – 06 (Reapproved 2017)

Standard Practice for Integrity Testing of Water Filtration Membrane Systems¹

This standard is issued under the fixed designation D6908; 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 practice covers the determination of the integrity of water filtration membrane elements and systems using air based tests (pressure decay and vacuum hold), soluble dye, continuous monitoring particulate light scatter techniques, and TOC monitoring tests for the purpose of rejecting particles and microbes. The tests are applicable to systems with membranes that have a nominal pore size less than about 1 μm . The TOC, and Dye, tests are generally applicable to NF and RO class membranes only.

1.2 This practice does not purport to cover all available methods of integrity testing.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *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:*²

D1129 Terminology Relating to Water

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

D3370 Practices for Sampling Water from Closed Conduits

¹ This practice is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.08 on Membranes and Ion Exchange Materials.

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² 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.

D3864 Guide for On-Line Monitoring Systems for Water Analysis

D3923 Practices for Detecting Leaks in Reverse Osmosis and Nanofiltration Devices

D4839 Test Method for Total Carbon and Organic Carbon in Water by Ultraviolet, or Persulfate Oxidation, or Both, and Infrared Detection

D5173 Guide for On-Line Monitoring of Total Organic Carbon in Water by Oxidation and Detection of Resulting Carbon Dioxide

D5904 Test Method for Total Carbon, Inorganic Carbon, and Organic Carbon in Water by Ultraviolet, Persulfate Oxidation, and Membrane Conductivity Detection

D5997 Test Method for On-Line Monitoring of Total Carbon, Inorganic Carbon in Water by Ultraviolet, Persulfate Oxidation, and Membrane Conductivity Detection

D6161 Terminology Used for Microfiltration, Ultrafiltration, Nanofiltration and Reverse Osmosis Membrane Processes

D6698 Test Method for On-Line Measurement of Turbidity Below 5 NTU in Water

E20 Practice for Particle Size Analysis of Particulate Substances in the Range of 0.2 to 75 Micrometres by Optical Microscopy (Withdrawn 1994)³

E128 Test Method for Maximum Pore Diameter and Permeability of Rigid Porous Filters for Laboratory Use

F658 Practice for Calibration of a Liquid-Borne Particle Counter Using an Optical System Based Upon Light Extinction (Withdrawn 2007)³

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this standard, refer to Terminologies D6161 and D1129.

3.1.2 For description of terms relating to cross flow membrane systems, refer to Terminology D6161.

3.1.3 For definition of terms relating to dissolved carbon and carbon analyzers, refer to Guide D5173 and Test Methods D5904 and D5997.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bubble point, n*—when the pores of a membrane are filled with liquid and air pressure is applied to one side of the

³ The last approved version of this historical standard is referenced on www.astm.org.