



Summary of Substantive Changes  
between the 2017a, 2019, and the 2020 editions of  
NSF/ANSI 401 "Drinking water treatment units – Emerging  
compounds/incidental contaminants"

Presented to the IAPMO Standards Review Committee on April 12, 2021

**General:** The changes to this standard may have an impact on currently listed products. The substantive change is:

- Clarified the test pressure for non-pressurized water treatment devices (see Section 4.4.3.1)
- Added guidance on extraction testing for hot and cold water dispensers (see Section 4.4.3.4)
- Clarified how systems shall be tested with and without adsorptive media for replacement elements under exposure testing (see Sections 4.4.3.6, and 4.4.3.7)
- Added an exemption for cyclic pressure testing for components downstream of the system’s on/off valve that are not subject to pressure under the off mode, and that either contain no media subject to plugging or are not designed to contain media (see Section 5.4)

Section 4. Materials: Clarified the test pressure for non-pressurized water treatment devices as follows:

**4.4 Materials evaluation**

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**4.4.3 Exposure**

**4.4.3.1** *The system or component(s) of a system shall be installed, flushed, and conditioned in accordance with the manufacturer's instructions using the exposure water specified in Section 4.4.2 at an initial inlet static pressure of 340 kPa (50 psig). Nonpressurized systems, e.g., pour-through products, shall be exposed at atmospheric pressure.*

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Section 4.4.3.4: Added guidance on extraction testing for hot and cold water dispensers as follows:

**4.4.3.4** *All samples collected shall be composited and analyzed in accordance with applicable methods referenced in Section 2. Systems that are designed to heat or cool the product water shall be connected to an appropriate power source and operated to heat or cool the water. The system shall be operated at the manufacturer’s default temperature setting. If adjustable, the system shall be operated at the highest setting available.*

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Section 4.4.3.6: Clarified how systems shall be tested with and without adsorptive media for replacement elements under exposure testing as follows:

**4.4.3.6** *Systems with adsorptive or absorptive media shall be tested with and without the media. Testing without media shall include removal of any granular adsorptive or absorptive media, and removal of any adsorptive or absorptive replacement elements. Systems that contain only encapsulated filter element(s) that are unable to be operated with the element removed, are exempt from without media extraction testing.*



4.4.3.7 Systems with only encapsulated element(s) containing absorptive or adsorptive media but provide a component(s) to allow the consumer to dispense untreated water, without media extraction testing shall be performed on the system in the manner that the system is operated with the bypass component(s) installed. Additional conditioning instructions should be provided in this case if applicable. NOTE — Systems may include an option or design feature which allow the water system to operate even when a filter cartridge is removed such as a bypass valve, dummy cartridge, bypass plug, or other bypass mechanism.

Section 5.4, Structural integrity test methods: Added an exemption for cyclic pressure testing for components downstream of the system’s on/off valve that are not subject to pressure under the off mode, and that either contain no media subject to plugging or are not designed to contain media as follows:

**5.4.2 Hydrostatic pressure test – Complete systems**

Systems designed to operate only at atmospheric pressure shall be exempt from the hydrostatic pressure test but shall be watertight in normal use. For complete systems designed for open discharge the components downstream of the system on/off valve that are not subject to pressure under the off mode, and that either contain no media subject to plugging or are not designed to contain media, shall be exempt from the hydrostatic pressure test but shall be watertight in normal use. Components that are downstream of the system on/off valve but upstream of media subject to clogging shall meet the requirements of this section. The following procedure shall be used for the hydrostatic pressure testing of other complete systems:

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**5.4.4 Cycle test**

Systems designed to operate at atmospheric pressure shall be exempt from the cyclic pressure test but shall be watertight in normal use. For complete systems designed for open discharge the components downstream of the system on/off valve that are not subject to pressure under the off mode, and that either contain no media subject to plugging or are not designed to contain media, shall be exempt from the cyclic pressure test but shall be watertight in normal use. Components that are downstream of the system on/off valve but upstream of media subject to clogging shall meet the requirements of this section.

The following procedure shall be used for the cyclic testing:

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Table 5.1, Structural Integrity testing requirements: