



**Summary of Substantive Changes
between the 2014 and the 2015 editions of
NSF/ANSI 42 “Drinking Water Treatment Units - Aesthetic Effects”**

Presented to the IAPMO Standards Review Committee on February 8, 2015

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

- Added additional requirements for multiple, sequential treatment technologies (see Section 1.6 and Annex G)
- Reduced the volume of exposure water required and specified a maximum number of samples to be exposed for small volume fittings that occur infrequently in the path of the water (see Section 4.2.3)
- Increased the hydrostatic pressure test limits for a number of pressure vessel systems and added a hydrostatic pressure test limit for valves and controls (see Table 5)
- Added use pattern requirements for testing nonplumbed pour-through-type batch treatment systems in the case that no manufacturer’s recommended use pattern is given (see Sections 7.2.4.2, 7.3.1.6, 7.3.2.7, 7.3.3.7, 7.3.4.7, 7.3.5.7, 7.3.6.7, 7.3.7.7, 7.4.7.2).
- Specified that only mono-chloramine (CAS 10599-90-3) can be used in the influent challenge water vs Chloramine-T (CAS 127-65-1 or 7080-50-4) (see Section 7.3.2.6).

Section 1, General: Added additional requirements for multiple, sequential treatment technologies as follows:

[1.6 Treatment train](#)

[A system that contains multiple, sequential treatment technologies for a performance claim under this Standard shall meet the applicable requirements as described in Annex G.](#)

Section 4.2.3, Exposure: Reduced the volume of exposure water required and specified a maximum number of samples to be exposed for small volume fittings that occur infrequently in the path of the water as follows:

[4.2.3.3 A minimum sample volume of 2 L shall be collected at each sample point. If the water-holding volume of the product is greater than 2 L, the entire volume shall be collected in a suitable collection vessel, and a 2-L subsample obtained from this volume. If the water-holding volume of the product is less than 2 L, sufficient samples shall be exposed to provide the required 2-L volume of extractant water. The maximum number of samples exposed shall not exceed 16 with 125 mL of extractant water drawn from each sample. If the components with a water-holding volume that is less than 250 mL and is able to be identified as one that will only occur once in the flow path of dispensed treated water \(such as diverters, faucets, RO shutoff valves, or specialty components\) then a volume of 250 mL shall be drawn from each sample using a maximum number of 8 samples.](#)



Table 5, Structural integrity testing requirements: Increased the hydrostatic pressure test limits for a number of pressure vessel systems and added a hydrostatic pressure test limit for valves and controls as follows:

Hydrostatic pressure test; Second column in table:

~~1.52.4x maximum working pressure or 1,040 kPa (150 psig)~~ 2,070 kPa (300 psig)

Valves and Controls; Last row in table:

3 x maximum working pressure or 2,070 kPa (300 psig)

Sections 7.3.1.6 Methods (Also Sections and 7.3.2.7 and 7.3.3.7 and 7.3.4.7, 7.3.5.7, 7.3.6.7, and 7.3.7.7): Added use pattern requirements for testing nonplumbed pour-through-type batch treatment systems in the case that no manufacturer’s recommended use pattern is given as follows

7.3.1.6.2 Nonplumbed pour-through and batch systems

~~Two systems shall be tested using the appropriate influent challenge after establishment of the manufacturer's use pattern. If there is not a recommended use pattern, the systems shall be operated on the basis of four times the unit volume per batch. The cycle shall include a rest period of 15 to 60 s between batches, timed from the cessation of streamed flow.~~

If the effluent reservoir capacity is equal or greater than two times the volume of the influent reservoir, multiple successive influent reservoir fills shall be performed until the remaining volume in the effluent reservoir is less than the influent reservoir volume. The resulting volume for each filling of the effluent reservoir shall be the batch volume. If the volume of the effluent reservoir is less than two times the volume of the influent reservoir, the batch volume shall be the influent reservoir volume.

Example:

Influent volume [L]	Effluent volume [L]	Batch [L]
1.0	1.8	1.0
1.2	2.5	2.4
1.4	4.0	2.8

7.3.1.6.2.1 Systems with a manufacturer’s recommended use pattern

Two systems shall be tested using the appropriate influent challenge water using the manufacturer’s use pattern. The use pattern shall include information about the rest period between the fillings. The rest period after the influent reservoir has drained given by the manufacturer shall not exceed 75 min and include a tolerance of at least +/- 15 min. The systems shall be operated up to 16 h per 24-h period followed by an 8-h rest period. Exceptions to the rest period are permissible for laboratory operational needs (e.g., water preparation, equipment malfunctions).

7.3.1.6.2.2 Systems without a manufacturer’s recommended use pattern

Two systems shall be tested using the appropriate influent challenge water. The systems shall be operated up to 16 h per 24-h period, followed by an 8-h rest period. The test cycle shall include a rest period of 30 to 90 min after the influent reservoir has drained. The total volume per day shall be limited to 10 batches. Exceptions to the rest period are permissible for laboratory operational needs (e.g., water preparation, equipment malfunctions).



Section 7.3.2.6, Influent challenge: Specified that only mono-chloramine (CAS 10599-90-3) can be used in the influent challenge water vs Chloramine-T (CAS 127-65-1 or 7080-50-4) as follows:

7.3.2.6.1 Chloramine reduction test water: The following footnote was added to the characteristics table:

³ [Monochloramine NH₂Cl \(CAS 10599-90-3\)](#)

7.3.2.6.5 Chloramine formation:

The following procedure is an example of a method used for the formation of chloramine in the challenge water. Other methods of mono-chloramine formation may be used if the resulting challenge water can be demonstrated to provide equivalent performance. [Chloramine-T \(CAS 127-65-1 or 7080-50-4\) shall not be used to generate the challenge water. Only the formation of mono-chloramine NH₂Cl \(CAS 10599-90-3\) shall be used as the challenge water compound.](#)

The following normative annex was added

[Annex G](#)

[Evaluation methods for systems with multiple technologies - treatment train](#)