MEMORANDUM

TO: Joint Committee on Drinking Water Additives – System Components

FROM: France Lemieux, Chairperson

DATE: March 5, 2015

SUBJECT: Proposed revision to NSF/ANSI 61 – *Drinking water system components- Health effects* (61i121r1)

Draft 1 of NSF/ANSI 61 issue 121, is being forwarded to the Joint Committee for balloting. Please review the changes proposed to these standards and **submit your ballot by March 26, 2015** via the NSF Online Workspace.

When adding comments, please identify the section number/name for your comment and add all comments under one comment number where possible. If you need additional space, please upload a word or pdf version of your comments online via the browse function.

Purpose

The purpose of this ballot is to update the terminology that describes the chlorine content of various test waters to be stated as "free available chlorine."

Background

During the 2014 Joint Committee meeting, it was recommended the terminology used in NSF/ANSI 61 to describe the chlorine content of the various test waters be updated for clarity and consistency. All are currently based on simple additions of sodium hypochlorite.

The issue was presented at the 2014 annual DWA-SC JC meeting on December 4, 2014, and the JC unanimously voted in favor of balloting the proposed revisions. Please see the attached meeting summary excerpt and the issue document (DWA-61-2014-2) for additional information.

Public Health Impact

This revision will have no negative impact on public health.

If you have any questions about the technical content of the ballot, you may contact me in care of:

Chairperson, Joint Committee
c/o Monica Leslie
Joint Committee Secretariat
NSF International
Tel: (734) 827-5643
E-mail mleslie@nsf.org

[Note – the changes are seen below using strikeout for removal of old text and gray highlights to show the suggested text. ONLY the highlighted text is within the scope of this ballot.]

NSF/ANSI Standard
for Drinking Water System Components – Health Effects

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5 Barrier materials

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5.5 Extraction procedures

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5.5.4 Conditioning (Optional)

Test samples shall be conditioned immediately after curing. This conditioning procedure simulates the disinfection of water mains and storage tanks prior to placing into service, and is based on AWWA Standards C651-05 and C652-02.

Coatings intended for pipes and fittings can be conditioned as follows:

1) prepare 50 mg/L free available chlorine solution using sodium hypochlorite (NaOCl – reagent grade or equivalent);

2) using a spray bottle, spray the previously rinsed test samples, wetting all surfaces to be exposed;

3) let the test samples stand for at least 3 hours; and

4) place the test samples in racks, rinse with cold tap water, and rinse with reagent water, meeting the requirements of Annex B, section B.9.2.1.

Coatings intended for water storage tanks or multiple uses (tanks, pipes, other) may be conditioned as follows:

1) prepare 200 mg/L free available chlorine solution using sodium hypochlorite (NaOCl - reagent grade or equivalent);

2) using a spray bottle, spray the previously rinsed test samples, wetting all surfaces to be exposed;

3) let the test samples stand for at least 30 min; and

4) place the test samples in racks, rinse with cold tap water, and rinse with reagent water, meeting the requirements of Annex B, section B.9.2.1.

Products may also be disinfected per manufacturer's use instructions.

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Annex B

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B.5 Mechanical plumbing devices

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B.5.5 Extraction water

The extraction water shall be prepared by combining:

– 25 ml of 0.4M sodium bicarbonate;

– chlorine stock solution per Annex B, section B.9.2.4;

– reagent water meeting the requirements of Annex B, section B.9.2.1 (make up to 1 L), and adjust pH as needed using 0.1M HCl; and

This water shall have a pH of 8.0 ± 0.5, alkalinity of 500 ± 25 ppm, dissolved inorganic carbon of 122 ± 5 ppm, and 2 ± 0.5 ppm of free available chlorine.

All exposure water that is being used to determine conformance to this Standard shall be prepared fresh daily and stored in a closed container.

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B.9 Extraction water preparation

B.9.1 Chemical characteristics

Four extraction waters shall be available for exposure:

a) pH = 5, with 2 mg/L free available chlorine and 100 mg/L hardness;
b) pH = 6.5, with 2 mg/L free available chlorine and 100 mg/L hardness;
c) pH = 8 (organic analysis), with 0 mg/L available chlorine and 100 mg/L hardness; and
d) pH = 10, with 2 mg/L free available chlorine.

All exposure water that is used to determine compliance to this Standard shall be prepared fresh daily and stored in a closed container.

B.9.2 Reagents

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B.9.2.4.2 Determining amount of chlorine stock solution required to obtain 2 ppm residual chlorine

To determine the volume of the chlorine stock solution necessary to add to the extraction water to obtain 2.0 mg/L free available chlorine residual, the following formula shall be used:

$$\text{mL stock solution} = \frac{2.0 \times B}{A}$$

where:

A = chlorine equivalent per mL of chlorine stock solution (determined above); and
B = liters of extraction water.

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B.9.3 pH 5 water

pH 5 extraction water shall be prepared to contain 100 mg/L hardness and 2 mg/L free available chlorine. Stock reagent solutions in the amounts shown in Annex B, Table B15 shall be diluted to the desired water volume with reagent water.

B.9.4 pH 6.5 water

pH 6.5 water shall be prepared to contain 100 mg/L hardness and 2 mg/L free available chlorine. Stock reagent solutions in the amounts shown in Annex B, Table B15 shall be diluted to the desired water volume with reagent water. The pH shall be adjusted to pH 6.5 ± 0.5 using 0.1M HCl.

NOTE – It is recommended that the pH 6.5 water be protected from exposure to air during its formulation and use to minimize pH drift. Unused exposure water should be maintained under a nitrogen blanket, and product samples should be plugged or tightly covered to minimize exposure to air.

B.9.5 pH 8 water (conditioning)

pH 8 conditioning water shall be prepared to contain 100 mg/L hardness and 2 mg/L free available chlorine. Stock reagent solutions in the amounts shown in Annex B, Table B15 shall be diluted to the desired water volume with reagent water.

B.9.6 pH 8 water (organic analysis)

pH 8 organic extraction water shall be prepared to contain 100 mg/L hardness and 0 mg/L free available chlorine. Stock reagent solutions in the amounts shown in Annex B, Table B15 shall be diluted to the desired water volume with reagent water.

B.9.7 pH 10 water

pH 10 extraction water shall be prepared to contain 2 mg/L free available chlorine. Stock reagent solutions in the amounts shown in Annex B, Table B15 shall be diluted to the desired water volume with reagent water.

Reason: Updating chlorine terminology per 2014 DWA-SC JC meeting discussion for consistency throughout the standard.