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Joint Committee on Drinking Water Additives – Treatment Chemicals

July 11, 2024

Proposed revision to NSF/ANSI/CAN 60 – Drinking Water Treatment Chemicals – Health Effects (60i103r2)

Revision 2 of NSF/ANSI/CAN 60, issue 103 is being forwarded to the Joint Committee for consideration. Please review the proposal and **submit your ballot by August 1, 2024** via the NSF Online Workspace.

Please review all ballot materials. When adding comments, please include the section number applicable to your comment and add all comments under one comment number whenever possible. If you need additional space, please use the attached blank comment template in the reference documents and upload online via the browse function.

Please note that your last recorded vote from any previous ballot draft revision(s) will not be carried forward. Please respond affirmative, negative, or abstain to the content of this revision. Comments on any prior revision(s) will not be carried forward.

Purpose

The proposed revision will add “or equivalent” to allow for the use of generic options rather than trademarked products and replaces “QS” with “dilute to volume” in section N-1.4.3.2.1.3.2 to eliminate confusion.

Background

A thorough review was completed by DLA Aviation which led to the revision and proposed updates.

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

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[Note – the recommended changes to the standard which include the current text of the relevant section(s) indicate deletions by use of ~~strikeout~~ and additions by grey highlighting. Revision 2 changes are indicated by yellow highlighting. Rationale Statements are in *italics* and only used to add clarity; these statements will NOT be in the finished publication.]

NSF/ANSI/CAN Standard
for Drinking Water Additives –

Drinking Water Treatment Chemicals – Health Effects

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Normative Annex 1
(previously Annex B)

Sampling, preparation, and analysis of samples

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N-1.4 Analysis methods

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N-1.4.3.2.1.1 Apparatus

The following apparatus shall be used in this analysis:

— vacuum apparatus or Sonicator to degas mobile phase;

— HPLC pump;

— HPLC-UV spectrophotometric detector;

— YMC ODS-AL column, 4.6 × 150 mm, (AL12S05-1546WT); Guard Housing (XPEF43WTI); and YMC ODS-AL S-5 Guard Column (AL12S05 G 304WTA);
— Bio-Rad HPLC Fast Acid Analysis Column Cat. No. 125-0100 and Micro-Guard Refill Cartridges Cat. No. 125-0129;

— autosampler 100 µL capabilities;

— analytical data acquisition system;

— millipore 0.1 VV µm filter disc or equivalent and 0.22 µm GS filter paper;

— volumetric pipettes;

- analytical balance accurate to 0.0001 g;
- multi-plate stirrer and 1 in stirring bars;
- vacuum filtration flasks;
- 100 mL volumetric flasks;
- 400 mL beakers;
- vacuum manifold for 0.1 µm Millex-VC filters or equivalent; and
- for latex: cage stirrer, Jiffy mixer, Model LM, or equivalent and cone-driven stirring motor.

N-1.4.3.2.1.2 Reagents

The following reagents shall be used in this analysis:

- concentrated sulfuric acid (H_2SO_4) reagent grade;
- acrylamide of 99%+; and
- ~~Milli-Q~~ ~~Type I water in accordance with ASTM D1193~~ Reagent water.

N-1.4.3.2.1.3 Procedure

N-1.4.3.2.1.3.1 Preparation of mobile phase

The mobile phase shall be prepared in the following manner:

a) Add 1.0 mL of concentrated sulfuric acid to a 2 L volumetric flask, ~~QS~~ dilute to volume with DI water and mix well. This yields a solution of sulfuric acid at approximately 0.01 M.

b) Filter through 0.22 µm GS Millipore filter paper or equivalent.

c) Vacuum or ultrasonicate to degas.

N-1.4.3.2.1.3.2 Sample preparation

- dry polymer preparation:

a) Weigh 199.5 ± 0.1 g DI water into a 400 mL tall form beaker. Record the weight as W_{wt}.

b) Clamp beaker under the mixer with the impeller centered about 1 cm above the bottom of the beaker.

c) Set mixer speed to 800 ± 20 rpm.

d) Place 0.5 g (to the nearest 0.1 mg) of dry polymer into the beaker. Record the weight as DP_{wt}.

e) Mix at 800 rpm for 30 min.

— chromatography sample preparation for dry polymer:

a) Weigh 1.0 g (to the nearest 0.1 mg) of the solution prepared in Section N-1..4.3.2.1.3.2.e into a glass jar. Record the weight as DP_S.

b) Add 10 mL of mobile phase weighed to the nearest (0.1 mg) into the same jar. Record the total weight as DP_T.

c) Add a stir bar and stir for 30 min at a medium speed.

d) After 30 min, filter through a 0.1 µm Millex-VC or equivalent using a vacuum manifold.

e) The sample is now ready for injection.

— chromatography sample preparation for latex polymer:

a) Weigh 0.1 g (to the nearest 0.1 mg) of latex polymer into a 100 mL volumetric flask. Record the weight as LP_{wt}.

b) ~~QS~~ Dilute to volume the flask with mobile phase.

c) Add a stir bar and stir for 30 min at a medium speed.

d) After 30 min, filter through a 0.1 µm Millex-VV filter unit or equivalent.

e) The sample is now ready for injection.

Rationale: Adds "or equivalent" to allow for the use of generic options rather than trademarked products. Replaces "QS" with "dilute to volume" to eliminate confusion.