NSF International

MEMORANDUM

TO: Joint Committee on Drinking Water Additives - System Components

FROM: France Lemieux, Chair of the Joint Committee

DATE: April 1, 2022

SUBJECT: Proposed revision to NSF/ANSI/CAN 61 – *Drinking Water System Components – Health Effects* (61i161r1)

Revision 1 of NSF/ANSI/CAN 61, issue 161 is being forwarded to the Joint Committee for consideration. Please review the proposal and **submit your ballot by April 22, 2022** via the NSF Online Workspace <www.standards.nsf.org>.

Please review all ballot materials. 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 use the attached blank comment template in the reference documents and upload online via the browse function.

Purpose

The proposed revision will add six brass rod alloys to the list of acceptable materials for lead leaching under Annex N-2 of NSF/ANSI/CAN 61.

Background

At the 2021 annual DWA-SC JC meeting, the Copper Development Association Inc. (CDA) presented the results of their study on several brass rod alloys to satisfy the requirements for inclusion to the list of acceptable materials under Normative Annex 2 (N-2) for lead leaching against the lower Q criteria in Section 9.5.1.1. Additional challenges were included to account for the potential influence of different machining parameters used to produce finished parts (*e.g.*, cutting speed, surface roughness, tool wear, etc.) that could be applied in a wide variety of production settings with different equipment and tooling. The results showed that all six alloys tested (C27250, C89833, C89835, C69850, C69300, and C49100) fall well below the Q value limit.

Upon review by the Committee the issue was approved to send to formal ballot. Please refer to the 2021 JC meeting excerpt, the original issue paper, and supporting technical report under the referenced items included with this ballot for additional information.

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 gray 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 System Components – Health Effects

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Normative Annex 2
(formerly Annex C)

Acceptable materials

N-2.1 Purpose

This annex defines the evaluation process for materials that have been submitted for qualification as acceptable materials.

N-2.2 Evaluation of acceptable materials

A material shall be designated as an "acceptable material" in Table N-2.1 if it has a standard material formulation or specification (e.g., ASTM); has undergone extraction testing that demonstrates that the material does not contribute any contaminant in excess of its acceptable level as determined by this Standard (see Section N-2.3); and is accompanied by adequate documentation (see Section 3.4).

N-2.2.1 Acceptable materials for mechanical plumbing devices – lead leaching only

Materials included in Table N-2.2 have been tested for compliance according to Section 9 requirements, but not for compliance under any other section of the standard or for non-lead analytes and therefore may be subject to additional testing outlined in this standard. The brass alloys included in Table N-2.2 have demonstrated compliance with the lower lead-leaching criteria for Section 9 endpoint devices in Section 9.5.1.1 when used within the operating parameters defined in the table.

N-2.3 Extraction testing

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Table N-2.1

Acceptable materials

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Table N-2.2
Acceptable materials for mechanical plumbing devices – Lead leaching only

Material	Specific designation	Standard (product) reference	Surface area-to-volume ratio	End use temperature	Composition
brass	UNS C27250	—	1,613 cm^2/L (153 in^2/L)	23 °C (73 °F)	Percent composition: copper (62.0 to 65.0) lead (0.009 max.) iron (0.35 max.) phosphorous (0.05 to 0.40) carbon (0.20 to 1.2) bismuth (0.009 max.) silicon (0.009 max) zinc (balance)
	UNS C49100	—	1,613 cm^2/L (153 in^2/L)	23 °C (73 °F)	Percent composition: copper (85.5 to 87.5) lead (0.09 max.) tin (0.30 max.) iron (0.30 max.) phosphorous (0.10 max.) tellurium (0.30 to 0.9) nickel (0.30 max.) zinc (14.5 max.)
	UNS C69300	ASTM B124 ASTM B283 ASTM B371	1,613 cm^2/L (153 in^2/L)	23 °C (73 °F)	Percent composition: copper (73.0 to 77.0) lead (0.09 max.) tin (0.20 max.) iron (0.10 max.) phosphorous (0.04 to 0.15) nickel (0.10 max. manganese (0.10 max.) silicon (2.7 to 3.4) zinc (balance)
	UNS C69850	ASTM B124 ASTM B283 ASTM B371	1,613 cm^2/L (153 in^2/L)	23 °C (73 °F)	Percent composition: copper (67.5 to 69.0) lead (0.09 max.) tin (0.20 max.) iron (0.10 max.) phosphorous (0.04 to 0.15) nickel (0.10 max.) manganese (0.10 max.) silicon (1.53 to 2.0) zinc (balance)
	UNS C89833	—	1,613 cm^2/L	23 °C (73 °F)	Percent composition:

			(153 in^2/L)		copper (86.0 to 91.0) lead (0.09 max.) tin (4.0 to 6.0) iron (0.30 max.) phosphorous (0.050 max.) nickel (1.0 max.) aluminum (0.005 max.) bismuth (1.7 to 2.7) sulfur (0.08 max.) antimony (0.25 max.) silicon (0.005 max.) zinc (2.0 to 6.0)
	UNS C89835	—	1,613 cm^2/L (153 in^2/L)	23 °C (73 °F)	Percent composition: copper (85.0 to 89.0) lead (0.09 max.) tin (6.0 to 7.5) iron (0.20 max.) phosphorous (0.10 max.) nickel (1.0 max.) aluminum (0.005 max.) bismuth (1.7 to 2.7) sulfur (0.08 max.) antimony (0.35 max.) silicon (0.005 max.) zinc (2.0 to 4.0)

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Rationale: Added acceptable materials under new Table N-2.2 per 2021 DWA-SC JC meeting discussion (December 2, 2021) and submission of extensive study on several brass rod alloys to satisfy the criteria for inclusion in the NSF 61 Normative Annex 2 list of 'Acceptable Materials' for lead leaching against the lower Q criteria in Section 9.5.1.1. See supporting documentation under referenced items included with this ballot.