



*NSF International Standard /
American National Standard*

NSF/ANSI 42 - 2017

Drinking Water Treatment Units -
Aesthetic Effects



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NSF International Standard/
American National Standard
for Drinking Water Treatment Units –

**Drinking water treatment units –
Aesthetic effects**

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Foreword²

The purpose of this Standard is to establish minimum requirements for materials, design, construction, and performance of drinking water treatment units that are designed to reduce specific aesthetic-related contaminants in public or private water supplies. This Standard specifies the minimum product literature and labeling information that a manufacturer must supply to authorized representatives and system owners. Lastly, the Standard provides minimum service-related obligations that the manufacturer must extend to system owners.

This edition of the Standard contains the following revisions:

Issue 87

This revision addresses sample collection for systems containing multiple potable water outlets under section 4.2.3.

Issue 90

An alternative use pattern was added to the methods for point of entry devices.

Issue 91

An optional iron influent challenge of 10 mg/L was added.

Issue 93

A method for exposure of fine media was incorporated.

Issue 94

Normative references were updated.

Issue 95

The EPA Method 521 reference for analyzing nitrosamines in the materials extraction testing was included in section 4.

Issue 96

Evaluation criteria columns from tables 4.1, 4.2, and 4.3 were removed and now reference the evaluation criteria in Annex D, Table D.1 in NSF/ANSI 61.

This Standard was developed by the NSF Joint Committee on Drinking Water Treatment Units using the consensus process described by the American National Standards Institute.

Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance schedule and can be opened for comment at any time. Comments should be sent to Chair, Joint Committee on Drinking Water Treatment Units at standards@nsf.org, or c/o NSF International, Standards Department, P.O. Box 130140, Ann Arbor, Michigan 48113-0140, USA.

² The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

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NSF/ANSI Standard for Drinking Water Treatment Units –

Drinking water treatment units – Aesthetic effects

1 General

1.1 Purpose

It is the purpose of this Standard to establish minimum requirements for materials, design and construction, and performance of drinking water treatment systems that are designed to reduce specific aesthetic-related (non-health effects) contaminants in public or private water supplies. This Standard also specifies the minimum product literature and labeling information that a manufacturer shall supply to authorized representatives and system owners as well as the minimum service-related obligations that the manufacturer shall extend to system owners.

1.2 Scope

The point-of-use and point-of-entry systems addressed by this Standard are designed to be used for the reduction of specific substances that may be present in drinking water (public or private) considered to be microbiologically safe and of known quality. Systems covered under this Standard are intended to reduce substances affecting the aesthetic quality of the water or to add chemicals for scale control, or both. Substances may be soluble or particulate in nature at concentrations influencing public acceptance of the drinking water. It is recognized that a system may be effective in controlling one or more of these substances but is not required to control all. Systems with components or functions covered under other NSF or NSF/ANSI standards or criteria shall conform to the applicable requirements therein.

1.3 Alternate materials, designs, and construction

While specific materials, designs, and construction may be stipulated in this Standard, systems that incorporate alternate materials, designs, and construction may be acceptable when it is verified that such systems meet the applicable requirements stated herein.

1.4 Chemical and mechanical reduction performance claims

1.4.1 All NSF/ANSI 42 performance claims shall be verified and substantiated by test data generated under the requirements of NSF/ANSI 42.

1.4.2 When performance claims are made for substances not specifically addressed in the scope of this Standard or for substances not specifically addressed but falling under the scope of NSF/ANSI 42, such claims shall be identified as not specifically addressed in the Standard.

1.5 Minimum requirements

This Standard establishes minimum requirements.

A system as defined in this Standard shall meet the applicable requirements of 4, 5, 6, and 8, and at least one performance claim as described in 7.

A component as defined in this Standard shall meet the requirements of 4 and 8. If the component is pressure-bearing, it shall also meet the applicable requirements of 5.

A commercial modular system as defined in this Standard shall meet the applicable requirements of 4, 5, 6, and 8, and at least one performance claim as described in 7. Manifolds of commercial modular systems shall meet the requirements of 4, 5 (if pressure bearing), and 8, and shall be evaluated as stand-alone components. Manifolds shall have a minimum internal diameter such that the water velocity in the manifold will not exceed 3 m (10 ft) per second (which can be calculated based upon the system flow rate and the manifold internal diameter). Individual modular elements evaluated as a manifold and modular element combination shall meet the applicable requirements of 4, 5, 6, and 8, and at least one performance claim as described in 7.

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.

2 Normative references

The following documents contain requirements that, by reference in this text, constitute requirements of this Standard. At the time of publication, the indicated editions were valid. All of the documents are subject to revision and parties are encouraged to investigate the possibility of applying the recent editions of the documents indicated below. The most recent published edition of the document shall be used for undated references.

21 CFR §. Parts 170-199. Food and Drugs³

APHA, *Standard Methods for the Examination of Water and Wastewater*, twentieth edition⁴

NSF/ANSI 51. *Food Equipment Materials*

NSF/ANSI 53. *Drinking water treatment units – Health effects*

NSF/ANSI 60. *Drinking water treatment chemicals – Health effects*

NSF/ANSI 61. *Drinking water system components – Health effects*

ISO 12103-1:1997. *Road Vehicles – Test dust for filter evaluation – Part 1: Arizona test dust*⁵

USEPA-600/4-79-020. *Methods for the Chemical Analysis of Water and Wastes*, March 1983⁶

USEPA-600/4-84/053. *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*, June 1984⁶

³ USFDA –CFR Code of Federal Regulations Title 21
<<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm>>

⁴ American Public Health Association (APHA), 800 I Street, NW, Washington, DC 20001 <www.apha.org>.

⁵ International Organization for Standardization (ISO), Case postale 56, CH-1211 Geneve 20, Switzerland <www.iso.org>.

⁶ USEPA, Environmental Monitoring and Support Laboratory, Cincinnati, OH 45268 <www.epa.gov>.