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Drinking water treatment units – Aesthetic effects

NSF International Standard/ American National Standard

NSF/ANSI 42–2007e

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

Drinking water treatment units – Aesthetic effects

Standard Developer

NSF International

Adopted July 11, 2007
NSF International

Designated as an ANSI Standard
July 11, 2007
American National Standards Institute

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Prepared by
The NSF Joint Committee on Drinking Water Treatment Units

Recommended for adoption by
The NSF Council of Public Health Consultants

Adopted by
The NSF Board of Directors
March 1973

Revised June 1982
Revised June 1988
Revised September 1996
Revised September 1997
Revised November 1998
Revised September 1999
Revised July 2000
Revised November 2000
Revised January 2001
Revised January 2002
Addendum 1.0 – June 2002
Addendum 2.0 – October 2002
Editorial revision, November 2003
Addendum 1.0 – August 2004
Revised April 2005
Editorial revision, June 2005
Revised July 2007

Published by

NSF International
PO Box 130140, Ann Arbor, Michigan 48113-0140, USA

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Foreword[2]

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.

Water contact materials in Drinking Water Treatment Units listed under NSF/ANSI 42, 44, 53, 55, 58, and 62 are tested and evaluated under a separate protocol from NSF/ANSI 61 with criteria that were developed specifically for the intended end use. NSF/ANSI 61 listing should not be additionally required for acceptance of these listed units for water contact application.

This edition of NSF/ANSI 42-2007e contains greater-than / equal-to signs, less-than / equal-to signs, greater-than signs, and les- than signs. In NSF/ANSI 42-2007, greater-than / equal-to signs, less-than / equal-to signs, greater-than signs, and less-than signs appeared as equal-to signs.

This edition of the Standard contains the following revisions:

Issue 49

– The revisions made in this issue to the Standard rectify inaccuracies that occurred in the reformatting process in 2003. These changes include:

– 7.2.4.3 Bacteriological performance – methods for point of entry systems – the following revision has been made: ~~The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure.~~ The systems shall be operated on a 1 min-on / 59 min-off cycle for 16 h per 24-h period. This operation shall continue for 5 d followed by a 56-h stagnation period. The duration of the test shall be 100% of the manufacturer's replacement time but shall not be less than 6 weeks and shall not be longer than 13 weeks;

– 7.3.2.6.3 Chloramine reduction testing – methods for point of entry – The following revision has been made: The pressure will be increased as necessary to a maximum of 620 kPa (90 psig) to maintain the specified flow rate. The flow rate shall be additionally controlled by a control valve installed downstream of the test systems. A note has also been added stating,"If the manufacturer's rated service flow rate cannot be maintained at 620 kPa (90 psig), the test shall be concluded";

– 7.3.5.7.1 and 7.3.5.7.2, Iron and manganese reduction testing – methods for Plumbed-in systems and faucet-mounted systems and Nonplumbed pour-through and batch systems, have been updated to reflect that one unit needs to be tested; and

– 7.3.5.7.3 Iron and manganese reduction testing – methods for point of entry systems have been added.

Issue 50

The revisions made in this issue enables point-of-entry drinking water treatment systems to be covered by NSF/ANSI 61 and to use this one materials safety standard as the only test protocol for POE drinking water treatment units. 6.8 Rated pressure drop has been updated to apply to point-of-entry systems with and without built-in-flow control. The definitions for point-of entry and point-of-use systems have also

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been updated.

Issue 51

The revision made in this issue revises the requirements for filter media. The filter media requirement has been changed so that conformance is demonstrated by a lack of visible evidence of media migration in samples collected at the completion of a mechanical filtration test for products making mechanical reduction claims. For systems that do not make mechanical filtration claims, any evidence of visible media migration detected in the course of contaminant reduction testing would constitute a failure for filter media. Visible evidence of media migration would consist of visible detection of particles, and then confirmation that they are sufficient to represent a failure by confirming retention on a 100-mesh sieve.

Issue 52

The revision made in this issue establishes sample sizes for mechanical reduction tests other than cyst reduction. 7.4.8.1 Mechanical reduction testing – sampling for Plumbed-in systems, point-of-entry systems, and faucet-mounted systems requires sample sizes to be 500 mL or one unit volume, whichever is larger.

Issue 54

The revision made in this issue updates the pass/fail criteria levels in Tables 1 and 2 for cyclohexanone, methyl ethyl ketone, carbon disulfide, diethyl phthalate, di-n-butyl phthalate, butyl benzyl phthalate, naphthalene, acetone, and 1,4-dioxane to match the levels in NSF/ANSI 61.

Issue 56

The revision made in this issue clarifies that the active agent levels from two units will be evaluated against levels of toxicological significance in 6.10 – Active agents and additives, and will not be evaluated during extraction testing.

Issue 57

The revisions made in this issue set the influent organism limits in the bacteriostatic test to values from 10^1 to 10^6 colony forming units / mL. A statement has also been added to address possible algal growth in the test tank.

Issue 59

The revision made in this issue includes USEPA method 524.2 in Table 1 for the analysis of volatile organic compounds and carbon disulfide and in Table 2 for the analysis of acetone, cyclohexanone, tetrahydrofuran, and methyl ethyl ketone, and USEPA method 525.2 in Table 2 for the analysis of phthalates and polynuclear aromatic hydrocarbons. This proposed revision also includes language to ensure when using the GC/MS (method 625) an adequate analytical library has been developed.

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. Comments should be sent to Chair, Joint Committee on Drinking Water Treatment Units, c/o NSF International, Standards Department, P. O. Box 130140, Ann Arbor, Michigan 48113-0140, USA.

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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.