Evaluation of components and devices used in wastewater treatment systems

NSF International Standard/ American National Standard

NSF/ANSI 46 – 2007
Addendum 1

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Chair, Joint Committee on Wastewater Technology
c/o NSF International
789 North Dixboro Road, P. O. Box 130140
Ann Arbor, Michigan 48113-0140 USA
Phone: (734) 769-8010 Telex: 753215 NSF INTL
FAX: (734) 769-0109
E-mail: info@nsf.org
Web: http://www.nsf.org

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for Wastewater Technology —

Evaluation of components and devices used in wastewater treatment systems

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Foreword[2]

The purpose of this Standard is to establish minimum materials, design and construction, and performance testing and evaluation requirements for components and devices used in wastewater treatment systems. Minimum literature requirements to be supplied by manufacturers to authorized representatives and owners are also specified.

This version (NSF/ANSI 46 – 2007 addendum) includes the following revisions:

– Section 12: modification of the language to require the use of the geometric mean rather than the arithmetic average for fecal coliform analysis.

ANSI Procedures prohibits the inclusion of commercial terms and conditions, such as manufacturers' warranties and guarantees, in American National Standards. However, the NSF Joint Committee on Wastewater Technology has historically believed strongly that all certifiers of NSF/ANSI 46 systems should have certification program policies that contain several key elements, including requirements for warranties. It is the Joint Committee's belief that these key elements provide valuable assurance of long-term performance as well as protection of public health and the environment. To emphasize the Joint Committee's convictions on this issue, two annexes, which are not part of this Standard, are included in NSF/ANSI 46 – 2007 for informational purposes and guidance. These annexes are intended to establish a uniform program by which products meeting the scope of this Standard should be certified. Annex A provides the key elements of a certification program, and annex B is a sample warranty.

This Standard was developed by the NSF Joint Committee on Wastewater Technology using the consensus process described in the American National Standards Institute.

Suggestions for improvements of this Standard are welcome. Comments should be sent to Chair, Joint Committee on Wastewater Technology, c/o NSF International, Standards Department, P. O. Box 130140, Ann Arbor, Michigan 48113-0140, USA.

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Revisions to NSF/ANSI 46 – 2007 are shown in this addendum as ~~crossouts~~ for deletions and highlights for additions.

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12.7 Performance testing and evaluation

The following testing shall be conducted on one UV disinfection device. In testing a model in order to gain test data to be used for approval of a model series, the most representative model within the series shall be tested. In addition to the testing and evaluation specified in 12.7, components or devices that are designed to operate with increased hydraulic pressure shall be tested and evaluated to the applicable requirements specified in 12.8.

UV disinfection devices shall be capable of operating for 90 d with no operation or maintenance performed on the device.

12.7.1 UV Disinfection test

12.7.1.1 UV disinfection devices shall be assembled, installed, and operated in accordance with the manufacturer's specifications.

– Manufacturers shall specify all key elements for effective UV disinfection, including but not limited to design flow conditions, minimum contact time, and mixing requirements.

– The UV disinfection device manufacturer shall specify the maximum and minimum gallons per day wastewater flow rates that the device (including the integral contact chamber) is designed to handle. If the UV disinfection device is capable of receiving influent both as pump-delivered flow and gravity-delivered flow, the manufacturer shall specify the minimum and maximum gallons per day wastewater flow rates for each.

– The UV disinfection device manufacturer shall specify the UV lamp to be used with the device. Lamp specifications shall include, at a minimum, lamp length; rated UV output (watts at 254 nm); irradiance at 1 m; and irradiance versus time (with corresponding rated lamp life, defined as the point where irradiance is reduced to 70% of initial performance).

12.7.1.2 The UV lamp output shall be measured at the beginning and the end of the 90-d test period.

UV lamp output shall be measured using a standard radiometer with the following specifications:

– linearity: ± 0.5%;

– spectral response: visible-blind detector with narrow band base filter centered at 254 nm, full width at half maximum = 20 nm or less;

– spatial response: cosine response ± 5%;