NSF International Standard /
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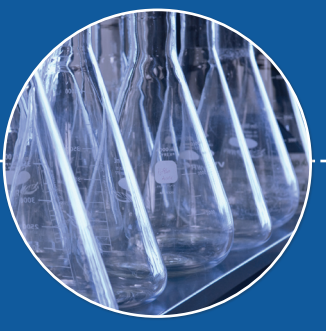
NSF/ANSI 40 - 2023

Residential Wastewater Treatment Systems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NSF International Standard /
American National Standard
for Wastewater Technology –

Residential Wastewater Treatment Systems

Standard Developer
NSF International

Designated as an ANSI Standard
January 31, 2023
American National Standards Institute

Prepared by
The NSF Joint Committee on Wastewater Technology

Recommended for adoption by
The NSF Public Health Council

Adopted by
NSF International
November 1970

Revised November 1978	Revised May 1983	Revised May 1990
Revised May 1996	Revised January 1999	Revised July 2000
Revised November 2004	Revised August 2005	Revised January 2009
Revised November 2010	Revised August 2012	Revised April 2013
Revised April 2018	Revised October 2019	Revised May 2021
Revised October 2022	Revised October 2023	

Published by
NSF International
P.O. Box 130140, Ann Arbor, Michigan 48113-0140, U.S.A.

For ordering copies or for making inquiries with regard to this standard, please reference the designation "NSF/ANSI 40 – 2023."

Printed in the United States of America.

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Abbreviations

The following table is provided as a reference for unit abbreviations for common forms of measurement used within NSF documents.

time	second	s
	minute	min
	hour	h
	day	d
	week	wk
	month	mo
	year	yr
length	inch	in
	foot	ft
	yard	yd
	micrometer	µm
	nanometer	nm
	millimeter	mm
	centimeter	cm
	meter	m
	kilometer	km
liquid measure	milliliter	mL
	liter	L
	liters per day	LPD
	liters per minute	LPM
	ounce	oz
	pint	pt
	quart	qt
	gallon	gal
	gallons per minute	GPM
	gallons per day	GPD
weight	microgram	µg
	picogram	pg
	nanogram	ng
	milligram	mg
	centigram	cg
	gram	g
	kilogram	kg
	pounds	lb
	tons	t
	metric tons	mt
miscellaneous	decibel	dB
	A-weighted decibel	dBA
	hertz	Hz

Contents

Foreword[2]

The purpose of this standard is to establish minimum materials, design and construction, and performance testing and evaluation requirements for residential wastewater treatment systems. This standard specifies minimum literature requirements to be supplied by manufacturers to authorized representatives and owners. This standard does not establish nor demonstrate the appropriateness of utilizing certified equipment for treating nonresidential wastewater. Special considerations should be made with regard to anticipated wastewater strength, characteristics, and flows when utilizing certified equipment outside of its evaluated purpose. Additional consideration should also be taken when utilizing multiple applications of these technologies, whether in series or parallel, to create systems with a combined treatment capacity that exceed the 5,678 LPD (1,500 GPD) or 3.8 lb/d BOD_5 limitations of the equipment.

ANSI prohibits the inclusion of commercial terms and conditions, such as manufacturers' warranties and guarantees, in product standards. However, the NSF Joint Committee on Wastewater Technology has historically believed strongly that all certifiers of NSF/ANSI 40 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 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 I-1 is a sample warranty, and Annex I-2 provides the key elements of a certification program. At NSF, both annexes have been adopted as certification program policies.

This edition of the standard contains the following revisions:

Issue 51

This revision modifies language in Section 1.4 to allow for scale down.

Issue 53

This revision updates language in Section 8.5 to be harmonized with the recently adopted glossary standard definitions in NSF/ANSI 437.

Issue 54

This revision modifies language in Section 8.5.2.1.3 regarding the pH calculation.

Issue 55

This revision updates language regarding dataplates in Section 5.10.1 to match language previously balloted into NSF/ANSI 385.

Issue 58

This revision adds clarification regarding stress loading in Section 8.2.2.

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

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This standard and the accompanying text are intended for voluntary use by certifying organizations, regulatory agencies, and/or manufacturers as a basis of providing assurances that adequate health protection exists for covered products.

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 Wastewater Technology at standards@nsf.org, or c/o NSF International, Standards Department, P.O. Box 130140, Ann Arbor, Michigan 48113-0140, U.S.A.

NSF/ANSI Standard
for Wastewater Treatment Systems –

Residential Wastewater Treatment Systems

1 General

1.1 Purpose

The purpose of this standard is to establish minimum materials, design and construction, and performance requirements for residential wastewater treatment systems. This standard also specifies the minimum literature that manufacturers shall supply to authorized representatives and owners, as well as the minimum service-related obligations that manufacturers shall extend to owners.

1.2 Scope

This standard contains minimum requirements for residential wastewater treatment systems having rated treatment capacities between 1,514 LPD (400 GPD) and 5,678 LPD (1,500 GPD). Management methods for the treated effluent discharged from residential wastewater treatment systems are not addressed by this standard.

System components covered under other NSF or NSF/ANSI standards or criteria shall also comply with the requirements therein. This standard shall in no way restrict new system designs, provided such designs meet the minimum specifications described herein.

1.3 Alternate materials, design, and construction

While specific materials, designs, and constructions may be stipulated in this standard, systems that incorporate alternate materials, designs, or constructions may be acceptable when it is verified that such systems meet the applicable requirements.

1.4 Performance classification

For the purpose of this standard, systems are classified according to the chemical, biological, and physical characteristics of their effluents, as determined by the performance testing and evaluations described herein.

All systems within a manufacturer's model series may be classified according to the performance testing and evaluation of a system within the series. Performance testing and evaluation of larger systems or systems rated at no less than 75% of the evaluated system within the series (having hydraulic treatment capacities within the scope of this standard) may not be necessary provided that the dimensions, hydraulics, mixing and filtering capabilities, and other applicable design characteristics are proportionately equivalent to the evaluated system.