

NSF International Standard / American National Standard

NSF/ANSI 58 - 2012a

Reverse Osmosis Drinking Water Treatment Systems









NSF International, an independent, notfor-profit, non-governmental organization, is dedicated to being the leading global provider of public health and safety-based risk management solutions while serving the interests of all stakeholders.

This Standard is subject to revision.

Contact NSF to confirm this revision is current.

Users of this Standard may request clarifications and interpretations, or propose revisions by contacting:

Chair, Drinking Water Treatment Units
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

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

Reverse osmosis drinking water treatment systems

Standard Developer

NSF International

NSF International

Designated as an ANSI standard December 5, 2012 American National Standards Institute

Recommended for adoption by

The NSF Joint Committee on Drinking Water Treatment Units The NSF Council of Public Health Consultants

Adopted by

The NSF Board of Directors November 1986

Revised May 1990
Revised November 1992
Revised January 1996
Revised September 1996
Revised September 1996
Revised September 1997
Revised September 1999
Revised May 2000
Revised November 2000
Revised January 2001
Revised January 2002
Addendum June 2002
Addendum October 2002

Revised December 2003
Editorial revision March 2004
Revised March 2004
Revised June 2005
Revised March 2006
Revised October 2007
Revised August 2009
Addendum May 2011
Revised February 2012

Revised December 2012

Published by

NSF International

P. O. Box 130140, Ann Arbor, Michigan 48113-0140, USA

For ordering copies or for making inquiries with regard to this Standard, please reference the designation "NSF/ANSI 58 –2012a."

Copyright 2013 NSF International

Previous editions © 2012, 2011, 2009, 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1997, 1996, 1992, 1990, 1986

Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from NSF International.

Printed in the United States of America.

Disclaimers¹

NSF, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of NSF represent its professional judgment. NSF shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. NSF shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.

NSF Standards provide basic criteria to promote sanitation and protection of the public health. Provisions for mechanical and electrical safety have not been included in this Standard because governmental agencies or other national standards-setting organizations provide safety requirements.

Participation in NSF Standards development activities by regulatory agency representatives (federal, local, state) shall not constitute their agency's endorsement of NSF or any of its Standards.

Preference is given to the use of performance criteria measurable by examination or testing in NSF Standards development when such performance criteria may reasonably be used in lieu of design, materials, or construction criteria.

The illustrations, if provided, are intended to assist in understanding their adjacent standard requirements. However, the illustrations may not include **all** requirements for a specific product or unit, nor do they show the only method of fabricating such arrangements. Such partial drawings shall not be used to justify improper or incomplete design and construction.

Unless otherwise referenced, the annexes are not considered an integral part of NSF Standards. The annexes are provided as general guidelines to the manufacturer, regulatory agency, user, or certifying organization.

-

¹ The information contained in this Disclaimer 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 Disclaimer 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.

This page is intentionally left blank.

Contents

1	General	1
	Scope Chemical and mechanical reduction performance claims	
2	Normative references	1
3	Definitions	2
		_
4	Materials	
	4.1 Materials in contact with drinking water	
	4.3 Temperature resistance	
	4.4 Materials evaluation	
	4.5 Gas chromatography/mass spectroscopy (GC/MS) analysis	
	no cao dinamatography mado opodi occopy (Cormo) analysis imministration	
5	Structural performance	14
	5.1 Structural integrity	14
6	Minimum performance requirements	18
	6.1 General	
	6.2 Flow control	
	6.3 Reject water connections	
	6.4 Storage tank capacity	
	6.5 Product water dispensing outlets	
	6.6 Drinking fountain outlets	
	6.8 Hazards	
	6.9 TDS reduction, recovery rating, and efficiency rating claims	
	6.10 Alternate air gap device test method	
7	Elective performance claims – test methods	28
	7.1 Chemical reduction claims	28
	7.2 Mechanical filtration claims	
	7.3 Data transfer protocol (DTP)	43
8	Instructions and information	
	8.1 Installation, operation, and maintenance instructions	
	8.2 Data plate	
	8.3 Performance data sheet	49
An	nex A	A1
Anney R		B1

This page is intentionally left blank.

© 2013 NSF NSF/ANSI 58 – 2012a

Foreword²

The purpose of this Standard is to establish minimum requirements for materials, design and construction, and performance of point-of-use reverse osmosis drinking water treatment systems. NSF/ANSI 58 also specifies minimum product literature requirements that manufacturers must provide to authorized representatives and owners. Minimum service related obligations for manufacturers to extend to system owners are also specified in this Standard.

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.

Issue 61

Section 7.1.1 has been revised to clarify that each certified system may only make a single capacity claim based on the lowest reduction capacity in any standard to which the model is certified.

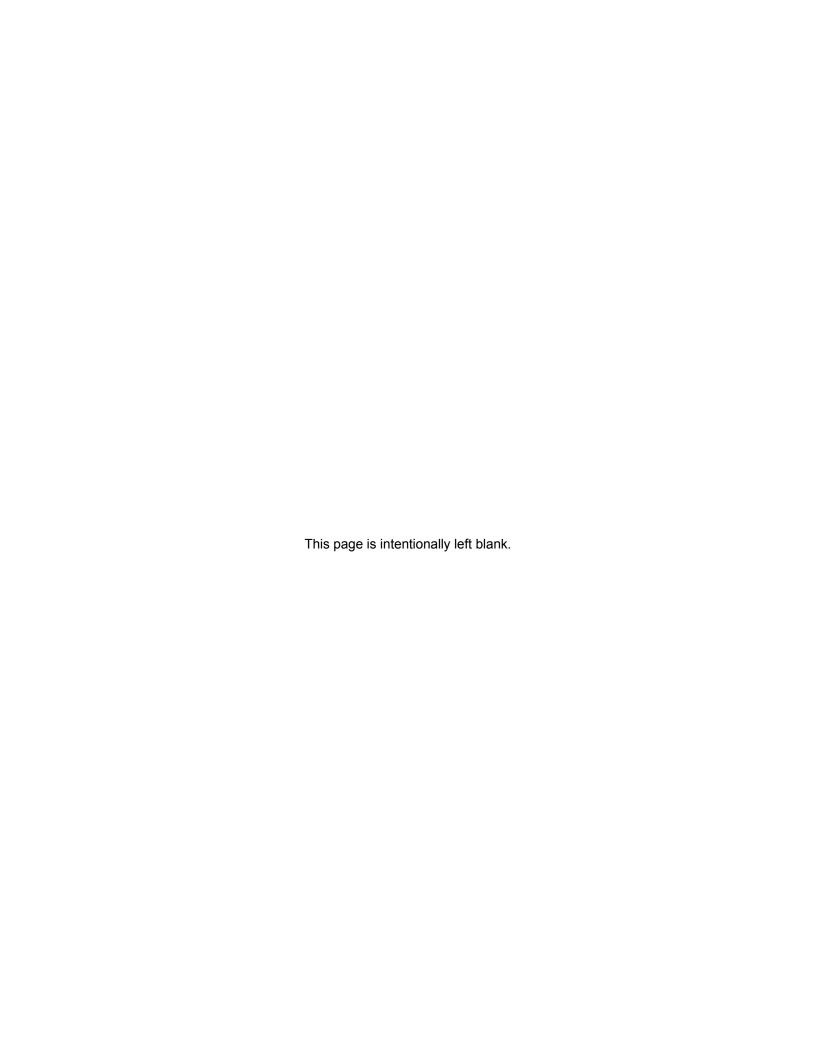
Issue 62

This revision addresses the number of samples taken on Days 2 – 4 of testing.

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.



© 2013 NSF NSF/ANSI 58 – 2012a

NSF/ANSI Standard for Drinking Water Treatment Units —

Reverse osmosis drinking water treatment systems

1 General

1.1 Purpose

The purpose of this Standard is to establish minimum requirements for materials, design and construction, and performance of reverse osmosis drinking water treatment systems. This Standard also specifies the minimum product literature that manufacturers shall supply to authorized representatives and owners, as well as the minimum service-related obligations that manufacturers shall extend to system owners.

1.2 Scope

The point-of-use reverse osmosis drinking water treatment systems addressed by this Standard are designed to be used for the reduction of specific substances that may be present in drinking water supplies (public or private) considered to be microbiologically safe and of known quality (except that claims for the reduction of filterable cysts may be permitted). Systems covered by this Standard are intended for reduction of total dissolved solids (TDS) and other contaminants specified herein. Systems with components or functions covered under other NSF or NSF/ANSI Standards or Criteria shall conform to the applicable requirements therein.

1.3 Chemical and mechanical reduction performance claims

- **1.3.1** All NSF/ANSI 58 performance claims shall be verified and substantiated by test data generated under the requirements of NSF/ANSI 58.
- **1.3.2** When performance claims are made for substances not specifically addressed in the scope of this Standard or for those substances not specifically addressed but falling under the scope of NSF/ANSI 58, claims not specifically addressed in the Standard shall be so identified.

2 Normative references

The following documents contain provisions that constitute requirements of this Standard. At the time of publication, the indicated editions were valid. All standards are subject to revision, and parties are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

APHA, Standard Methods for the Examination of Water and Wastewater, twentieth edition³

NSF/ANSI 53 – 2004. Drinking water treatment units – Health effects

³ American Public Health Association (APHA), 1015 Fifteenth Street, NW, Washington, DC 20005 <www.apha.org>.