

This is a preview of "NSF/ANSI 14-2009". [Click here to purchase the full version from the ANSI store.](#)



*NSF International Standard /
American National Standard*

NSF/ANSI 14 - 2009

Plastics Piping System Components
and Related Materials



NSF International, an independent, not-for-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, Joint Committee on Plastics
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 Plastics —

Plastics piping system components and related materials

Standard Developer
NSF International

NSF International

Designated as an ANSI Standard
December 11, 2009
American National Standards Institute

Prepared by
The NSF Joint Committee on Plastics

Recommended for adoption by
The NSF Council of Public Health Consultants

Adopted by
NSF International
October 1965

Revised February 1977
Revised November 1978
Revised November 1980
Revised November 1983
Revised November 1984
Revised November 1985
Revised August 1986
Revised October 1987
Revised December 1988
Revised November 1990
Revised September 1996
Revised November 1998

Revised December 1999
Revised February 2001
Revised January 2002
Revised January 2003
Revised September 2004
Revised August 2006
Revised March 2007
Revised May 2008
Revised December 2009

Published by

NSF International
PO 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 14 – 2009."

Copyright 2009 NSF International

Previous editions © 2008, 2007, 2006, 2004, 2003, 2002, 2001, 1999, 1998, 1996, 1990, 1988, 1987, 1986, 1985, 1984, 1983, 1980, 1978, 1977.

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
1.1	Purpose	1
1.2	Scope	1
1.3	Materials, design, and construction	1
2	Normative references	1
2.1	Normative references for plastic pipe and related components	1
2.2	Normative references for compounds and other materials	8
2.3	Other normative references	8
3	Definitions	9
4	Requirements for plastic piping system components and related materials	13
4.1	Materials	13
4.2	Physical and performance requirements	14
4.3	Potable water requirements	14
4.4	Special engineered products	14
4.5	Marking requirements	14
4.6	Quality assurance	14
5	Physical and performance requirements	14
5.1	General	14
5.2	Long-term strength of plastic pipe	14
5.3	Requirements for PVC resins	15
5.4	Critical dimensions	15
5.5	PVC ingredients	15
5.6	Monitoring	15
5.7	Chlorine resistance – Dependent Transfer Listing requirements	15
5.8	Fittings and valves	16
6	Special engineered (SE) product requirements	17
6.1	General	17
6.2	SE specifications	17
7	Requirements for potable water plastic piping system components and related materials	17
7.1	General	17
7.2	Requirements for generic ingredients	17
7.3	Requirements for lead	19
7.4	Monitoring	19
8	Marking requirements	19
8.1	General	19
8.2	Pipe	19
8.3	Fittings and appurtenances	19
8.4	Thread compounds, sealants, gasket lubricants, solvent cement, and adhesives	19
8.5	Special engineered products	20
8.6	Ingredients	20
9	Quality assurance	20
9.1	General	20
9.2	Start-up and qualification of molds	20
9.3	Generic ingredients	21
9.4	Verification of the calibration of equipment	21
9.5	Quality assurance records	21
9.6	Production code identification	21
9.7	Number of test specimens	21
9.8	Formulation verification for solvent cements and primers	21
9.9	Product-specific quality assurance requirements	22
	Table 1 – Calcium carbonate and titanium dioxide summary of exposure durations	22
	Table 2 – Minimum number of test specimens for a sample	22
	Table 3 – Solvent analysis methods	22
	Table 4 – Solvent control limits	23
	Table 5 – Acrylonitrile-butadiene-styrene (ABS) pipe testing frequency	23

Table 6 – Acrylonitrile-butadiene-styrene (ABS) fitting test frequency	24
Table 7 – Continuous waste tubing and fittings ABS, PVC and PP test frequency	25
Table 8 – Chlorinated poly(vinyl chloride) (CPVC) pipe test frequency	25
Table 9 – Chlorinated poly(vinyl chloride) (CPVC) fittings test frequency	26
Table 10 – PE-water, PE-gas and PB pipe and tubing test frequency	26
Table 11 – Fittings for PE, PEX and PB tubing test frequency	28
Table 12 – Poly(vinyl chloride) (PVC) pipe test frequency	30
Table 13 – Poly(vinyl chloride) fittings and pipe bell ends test frequency	31
Table 14 – Thermoset pipe and thermoset mortar pipe testing requirements and frequency	32
Table 15 – Solvent cements and primers ^{1,2} test frequency	32
Table 16 – Polyolefin and Polyvinylidene Fluoride (PVDF) pipe for corrosive waste drainage systems	32
Table 17 – Polyolefin and Polyvinylidene Fluoride (PVDF) fittings for corrosive waste drainage systems	33
Table 18 – Composite pipe test frequency	33
Table 19 – Fittings for composite pipe	34
Table 20 – PP pipe and fittings test frequency	34
Table 21 – Air admittance valve test frequency	34
Table 22 – Pressure rated composite pipe for elevated temperature services	35
Table 23 – Fittings for pressure rated composite pipe for elevated temperature services	35
Table 24 – Poly(vinyl chloride) (PVC) gasketed sewer fittings	35
Table 25 – PVC plastic schedule 40 drainage and DWV fabricated fittings	36
Table 26 – Flexible water connectors	36
Table 27 – Multilayer pipe type 2, compression fittings, and compression joints for hot and cold drinking-water systems	37
Table 28 – Fittings or appurtenances used in poly(vinyl chloride) (PVC) or chlorinated poly(vinyl chloride)(CPVC) systems.....	38
Table 29 – Oriented Polyvinyl Chloride (PVCO) pressure pipe	38
Table 30 – Pipe and fittings having post-industrial recycle content.....	39
Table 31 – Quality assurance requirements for materials suppliers and special compounders ¹	40
Table 32 – Poly(vinyl chloride) PVC pipe and fittings for underground fire service test frequency	40
Table 33 – PVC pressure pipe and fabricated fittings for water transmission and distribution	41
Annex A	A1
Annex B	B1
Table B1 – Abbreviations	B1

Foreword²

The purpose of this Standard is to establish minimum physical, performance, and health effects requirements for plastics piping system components and related materials.

In this edition of NSF/ANSI 14, the following revisions have been incorporated:

This version includes the following revisions:

- Issue 27 In this issue, normative References were updated including the addition and deletion of several standards.
- Issue 28 Tables 10, 16, and 17 were reviewed and updated in this issue. Two new tables were added, Table 29 and Table 30. Table 29 added requirements for PVCO pipe according to ASTM F1483 and AWWA C909. Table 30 added ASTM D2390 to meet these QC Requirements.
- Issue 29 The revision made in this issue added dezincification and resistance to stress corrosion requirements in NSF/ANSI 14 with the addition of a new section, Section 5.8.
- Issue 31 The revision made in this issue added two new tables to the standard. Tables 32 and 33 were added so that quality control requirements for UL 1285, UL 157, AWWA C900 and AWWA C905 would be incorporated.
- Issue 32 The revision made in this issue was to allow less frequent burst testing for larger sized pipes by adding a footnote in Table 10. Not requiring manufacturers to perform a burst test every 24 hours on large pipes saves time, effort, and cost.
- Issue 33 The revision made in this issue was to change the frequency of the burst test for sulfone fittings used in PEX systems in Table 11 from weekly to annually.

This Standard was developed by the NSF Joint Committee on Plastics using the consensus process described in NSF Standards Development Policies and accredited by ANSI.

Suggestions for improvement of this Standard are welcome. Comments should be sent to Chair, Joint Committee on Plastics, c/o NSF International, Standards Department, PO 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. As such, 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.

This page is intentionally left blank.

NSF/ANSI Standard
for Plastics —

Plastics piping system components and related materials

1 General

1.1 Purpose

This Standard establishes minimum physical, performance, and health effects requirements for plastic piping system components and related materials. These criteria were established for the protection of public health and the environment.

1.2 Scope

The physical, performance, and health effects requirements in this Standard apply to thermoplastic and thermoset plastic piping system components, including but not limited to pipes, fittings, valves, joining materials, gaskets, and appurtenances. The established physical, performance, and health effects requirements also apply to materials (resin or blended compounds) and ingredients used to manufacture plastic piping system components. This Standard provides definitions and requirements for materials, ingredients, products, quality assurance, marking, and recordkeeping.

1.3 Materials, design, and construction

For plastic piping system components and materials cited by the references in 2, the materials, design, and construction requirements of this Standard and the applicable product standard(s) in 2 shall apply. When materials, designs, or constructions are utilized that are not cited in 2, the plastic piping system components and related materials shall comply with the applicable requirements of this Standard. Plastic piping system components and related materials that incorporate materials, designs, or constructions not cited in 2 are acceptable, provided that such plastic piping system components and related materials can be demonstrated to be at least equivalent in terms of strength, quality, effectiveness, durability, and safety to those that are cited in this Standard.

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. It is the responsibility of the user of this Standard to determine the acceptance of the referenced standards to the application and requirements of the local jurisdictions.

2.1 Normative references for plastic pipe and related components

ASME A112.4.14-2004. *Manually Operated, Quarter-Turn Shutoff Valves for Use in Plumbing Systems*³

ASME A112.14.1-2003. *Backwater Valves*³