



*NSF International Standard /
American National Standard*

NSF/ANSI 3 - 2021

Commercial Warewashing Equipment



NSF International, an independent, not-for-profit, nongovernmental 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 Food Equipment
c/o NSF International
789 North Dixboro Road, PO Box 130140
Ann Arbor, Michigan 48113-0140 USA
Phone: (734) 769-8010 Fax: (734) 769-0109
Email: info@nsf.org
Web: <www.nsf.org>

NSF International Standard /
American National Standard
for Food Equipment –

Commercial Warewashing Equipment

Standard Developer
NSF International

Designated as an ANSI Standard
October 12, 2021
American National Standards Institute

Prepared by
The NSF Joint Committee on Food Equipment

Recommended for adoption by
The NSF Council of Public Health Consultants

Adopted by
NSF International
May 1953

Revised April 1965
Revised July 1996
Revised November 2005
Revised April 2009
Revised April 2017

Revised November 1977
Revised May 2001
Revised March 2007
Revised November 2010
Revised April 2019

Revised June 1982
Revised April 2003
Revised April 2008
Revised August 2012
Revised January 2022

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 3 – 2021.”

Copyright 2021 NSF International

Previous editions © 2019, 2017, 2012, 2010, 2009, 2008, 2007, 2005, 2003, 2001, 1996, 1982, 1977, 1965

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 International (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. It is the responsibility of the user of this standard to judge the suitability of the ANS for the user's purpose.

NSF standards provide basic criteria to promote sanitation and protection of public health and the environment. 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, state, or local) 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.

At the time of this publication, examples of programs and processes were provided for general guidance. This information is given for the convenience of users of this standard and does not constitute an endorsement by NSF International. Equivalent programs and processes may be used.

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	Alternate materials, design, and construction.....	1
1.4	Measurement	1
2	Normative references	1
3	Definitions	2
4	Materials	2
4.1	Corrosion resistance	2
4.2	Smoothness and cleanability	2
4.3	Coatings	2
4.4	Solder.....	3
4.5	Copper water lines	3
5	Design and construction	3
5.1	General sanitation	3
5.2	Joints and seams	3
5.3	Reinforcing and framing.....	3
5.4	Inspection and maintenance panels	4
5.5	Louvers	4
5.6	Equipment mounting.....	4
5.7	Legs and feet	4
5.8	Temperature indicating devices.....	4
5.9	Plumbing connections.....	5
5.10	Thermostatic control	6
5.11	Separation of residual food waste	6
5.12	Pumps.....	6
5.13	Spray assemblies.....	6
5.14	Racks	6
5.15	Sanitizing rinse.....	6
5.16	Pressure gauges.....	7
5.17	Condensers and blowers	7
5.18	Curtains and similar devices.....	7
5.19	Rinse aid, detergent, and chemical sanitizer feeders.....	7
5.20	Additional design and construction requirements for specific machine designs	8
6	Performance	9
6.1	Soil removal	9
6.2	Sanitization efficacy	15
6.3	Thermostat differential	21
7	Manufacturer's specifications	22
7.1	Hot water sanitizing machines	22
7.2	Chemical sanitizing machines	23
7.3	Equipment labeling	23
7.4	Manufacturer's instructions.....	24
8	Warewashing equipment provided with a security package	24
8.1	General	24
8.2	Special tools.....	24
8.3	Fastening methods	24

8.4	Drawers.....	24
8.5	Labeling	24
9	Warewashing equipment for use in marine environments	25
9.1	Materials	25
9.2	Design and construction	25
	Normative Annex 1 Heat unit equivalent (HUE) values corresponding to temperature in degrees Fahrenheit.....	26
	Normative Annex 2 Ingredients for pie filling	29
	N-2.1	29
	N-2.2	29
	Informative Annex 1 Joint Committee on Food Equipment roster	31

Foreword²

The purpose of this standard is to establish minimum public health and sanitation requirements for the materials, design, construction, and performance of commercial spray-type dishwashing, glasswashing, and pot, pan, and utensil washing machines.

This standard covers commercial dishwashing, glasswashing, and pot, pan, and utensil washing machines that wash their contents by applying sprays of detergent solutions and sanitize their contents by applying either hot water sprays or chemical sanitizing solutions. Both stationary rack and conveyor machines are covered by the scope of this standard. All equipment previously covered by NSF 26-1980: *Pot, Pan, and Utensil Commercial Spray-Type Washing Machines* is also covered by the scope of this standard.

The requirements established in this Standard are intended to be consistent with the Food Code, recommendations of the US Public Health Service, Food and Drug Administration.

This edition of the standard contains the following revisions:

Issue 15

This revision adds language covering the use of chemical sanitizing solutions in Section 7.2.3.

Issue 17

This revision adds language covering hot water sanitization testing in Sections 6.1.1.2 and 6.2.4.2 (previously Section 6.2.3.2).

Issue 18

This revision updates the normative references boilerplate language so it is consistent across all of the Food Equipment standards.

Issue 19

This revision adds new language regarding the test method of glasswashing machines in Section 6.1.2.2.

Issue 20

This revision adds new language regarding hot water sanitizing glasswashing machines as Section 6.2.2.2.

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

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 Food Equipment at standards@nsf.org, or 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. 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.

This page is intentionally left blank.

NSF/ANSI Standard for Food Equipment – Commercial Warewashing Equipment

1 General

1.1 Purpose

This standard establishes minimum public health and sanitation requirements for the materials, design, construction, and performance of commercial warewashing machines and their related components.

1.2 Scope

This standard applies to commercial dishwashing, glasswashing, and pot, pan, and utensil washing machines that wash their contents by applying sprays of detergent solutions, with or without blasting media granules, and sanitize their contents by applying sprays of hot water or chemical sanitizing solutions. Stationary rack and conveyor machines are covered under this standard. Equipment components and materials covered under other NSF or NSF/ANSI standards or criteria shall also comply with the requirements herein. This standard is not intended to restrict new unit design, provided that such design meets the minimum specifications described herein.

1.3 Alternate materials, design, and construction

While specific materials, design, and construction may be stipulated in this standard, equipment that incorporates alternate materials, design, or construction may be acceptable when such equipment meets the intent of the applicable requirements herein.

1.4 Measurement

Decimal and SI conversions provided parenthetically shall be considered equivalent. Metric conversions and significant figure rounding have been made according to IEEE/ASTM SI 10: *American National Standard for Metric Practice*.

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 most recent editions of the documents indicated below. The most recent published edition of the document shall be used for undated references.

40 CFR § 180.940, *Tolerance exemptions for active and inert ingredients for use in antimicrobial formulations (Food-Contact Surface Sanitizing Solutions)*³

³ National Archives and Records Administration, Office of the Federal Register. 7 G Street NW, Suite A-734, Washington, DC 20401. <www.ecfr.gov>