ANSI/AWWA **B306-22**

(Revision of ANSI/AWWA B306-15)

AWWA Standard

Aqua Ammonia (Liquid Ammonium Hydroxide)

Effective date: May 1, 2023.

First edition approved by the Board of Directors Jan. 24, 2007.
This edition approved Oct. 24, 2022.
Approved by American National Standards Institute Jan. 19, 2023.

American Water Works Association

Approved American National Standard ANSI
STANDARD Since 1881
AVA Documents Document Sharing Hub

Full document details: ANSI AWWA B306-22

AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all of the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. This standard does not supersede or take precedence over or displace any applicable law, regulation, or codes of any governmental authority. AWWA standards are intended to represent a consensus of the water industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed in the Official Notice section of *Journal AWWA.* The action becomes effective on the first day of the month following the month of *Journal AWWA.* publication of the official notice.

American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether that person has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review, and users are cautioned to obtain the latest editions. Producers of goods made in conformity with an American National Standard are encouraged to state on their own responsibility in advertising and promotional materials or on tags or labels that the goods are produced in conformity with particular American National Standards.

Caution Notice: The American National Standards Institute (ANSI) approval date on the front cover of this standard indicates completion of the ANSI approval process. This American National Standard may be revised or withdrawn at any time. ANSI procedures require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of ANSI approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036; (212) 642-4900, or e-mailing info@ansi.org.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including scanning, recording, or any information or retrieval system. Reproduction and commercial use of this material is prohibited, except with written permission from the publisher. Please send any requests or questions to permissions@awwa.org.

ISBN-13, print: 978-1-64717-130-8

ISBN-13, electronic: 978-1-61300-661-0

DOI: http://dx.doi.org/10.12999/AWWA.B306.22

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including scanning, recording, or any information or retrieval system. Reproduction and commercial use of this material is prohibited, except with written permission from the publisher.

Copyright © 2022 by American Water Works Association
Printed in USA

Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

Committee Personnel

The AWWA subcommittee that developed this standard had the following personnel at the time:

D.B. Binder, Tanner Industries Inc., Southampton, Pa.
R. Cannon, La Roche Industries, Atlanta, Ga.
J.C. Cranor, Littleton, Colo.
W.B. Huebner, Siemens, Mine Hill, N.J.
M.F. Knudson, Portland Bureau of Water Works, Portland, Ore.
B.C. Lauer (*liaison, nonvoting*), Standards Group Liaison, AWWA, Denver, Colo.
B. Lonsdale, Terra Industries, Courtright, Ont., Canada
E.R. Saxon, Beaufort-Jasper Water and Sewer Authority, Okatie, S.C.
K.B. Stark, Disinfectants Committee Liaison, NSF International, Ann Arbor, Mich.

The AWWA Standards Committee on Disinfectants, which reviewed and approved this standard, had the following personnel at the time:

K. Blake Stark, *Chair*

General Interest Members

S. Alpert (*liaison, nonvoting*), Hazen and Sawyer, Nashville, Tenn.
K.K. Au, Naperville, Ill.
N.J. Edman (*liaison, nonvoting*), Standards Group Liaison, AWWA, Denver, Colo.
M.C. Graves, Weston Solutions, Inc., Austin, Tex.
R. Hampaul, Nanaimo, B.C., Canada
M. Sivaganesan, US Environmental Protection Agency, Cincinnati, Ohio
K.B. Stark, NSF International, Ann Arbor, Mich.
A. Waldron, City of Englewood, Englewood, Colo.

Producer Members

M. Guzman, The Chlorine Institute, Arlington, Va.
E.M. Meyer, Solenis, Charleston, Tenn.
J. Mock, Olin Chlor Alkali Products, Cleveland, Tenn.
D.S. Weatherup, De Nora Water Technologies, Colmar, Pa.

Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

User Members

R.C. Lorenz, Westerville Water Plant, Westerville, Ohio

C.L. McLain, Consultant, Moorhead, Minn.

F. Noce, Lake County Department of Utilities, Painesville, Ohio

L. Olson, New Jersey American Water, Colts Neck, N.J.

P.R. Riendeau, New England Water Works Association, Holliston, Mass.

Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

SEC. PAGE

Foreword

I Introduction vii
I.A Background vii
I.B History vii
I.C Acceptance vii
II Special Issues viii
III Use of This Standard viii
III.A Purchaser Options and Alternatives viii
III.B Modification to Standard ix
IV Major Revisions ix
V Comments ix

Standard

1 General

1.1 Scope 1
1.2 Purpose 1
1.3 Application 1

2 References 2

3 Definitions 2

4 Requirements

4.1 Physical Requirements 3
4.2 Chemical Requirements/Assay 3
4.3 Impurities 4

SEC. PAGE

5 Verification

5.1 Sampling 4
5.2 Test Procedures 5
5.3 Acceptance 6
5.4 Notice of Nonconformance 7

6 Delivery

6.1 Marking 8
6.2 Packaging and Shipping 8
6.3 Affidavit of Compliance 9

Appendix

A Tables 11

Tables

A.1 Aqua-Ammonia Physical Properties 11
A.2 Baumé/Specific Gravity/Temperature/Concentration for Ammonium Hydroxide 12
A.3 Corrections to Aqua Ammonia Specific Gravity Readings to Compensate for Sampling Temperature Variations 15
A.4 Corrections to Aqua Ammonia Baumé Readings to Compensate for Sampling Temperature Variations 16

AVA Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

This page intentionally blank.

Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

Foreword

This foreword is for information only and is not a part of ANSI/AWWA B306.*

I. Introduction.

I.A. *Background.* Aqua ammonia (liquid ammonium hydroxide) is a pungent, colorless liquid at room temperature and atmospheric pressure. Aqua ammonia is a solution produced commercially by reacting anhydrous ammonia with water to form a solution the concentration of which is generally less than 30 percent ammonia by weight. Typical commercial grades include 19 percent and 29 percent; however, users may require other concentrations specific to their needs. In the water industry, aqua ammonia is combined with chlorine to form chloramine.

I.B. *History.* The first edition of ANSI/AWWA B306, Aqua Ammonia, was approved by the AWWA Board of Directors on Jan. 24, 2007. The second edition was approved by the AWWA Board of Directors on Jan. 24, 2015. This edition was approved on Oct. 24, 2022.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the Water Research Foundation (formerly AwwaRF) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.[†] Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including four standards developed under the direction of NSF[‡]: NSF/ANSI/CAN[§] 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects, NSF/ANSI/CAN 372, Drinking Water System Components—Lead

* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.
† Persons outside the United States should contact the appropriate authority having jurisdiction.
‡ NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105.
§ Standards Council of Canada, 55 Metcalfe Street, Suite 600, Ottawa, ON K1P 6L5 Canada.

AVA Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

Content, and NSF/ANSI/CAN 600, Health Effects Evaluation and Criteria for Chemicals in Drinking Water.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI/CAN 60. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdictions. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

NSF/ANSI/CAN 600 (which formerly appeared in NSF/ANSI/CAN 60 &61 as Annex A, "Toxicology Review and Evaluation Procedures") does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of "unregulated contaminants" are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of NSF/ANSI/CAN 600 procedures may not always be identical, depending on the certifier.

ANSI/AWWA B306 addresses additives requirements in Sec. 4.3.4 of the standard. The transfer of contaminants from chemicals to processed water or to residual solids is becoming a problem of great concern. The language in Sec. 4.3.4 is a recommendation only for direct additives used in the treatment of potable water to be certified by an accredited certification organization in accordance with NSF/ANSI/CAN 60, Drinking Water Treatment Chemicals—Health Effects. However, users of the standard may opt to make this certification a requirement for the product. Users of this standard should also consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues. This standard has no applicable information for this section.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives*. The following information should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA B306, Aqua Ammonia, of latest revision.
2. Whether compliance with NSF/ANSI/CAN 60, Drinking Water Treatment Chemicals—Health Effects, is required.

AVA Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved

3. Size and type of bulk storage container to be used and details on transfer equipment available for receiving bulk shipments. If bulk storage is not used, state required container sizes.

4. Details of federal, state, provincial, territorial, and local requirements (Section 4).

5. Physical form(s) and quantity (Sec. 4.1).

6. Tolerances allowed for concentrations (Sec. 4.2).

7. Specific maximum impurity content limits, if required (Sec. 4.3).

8. Whether the purchaser will reject product from containers or packaging with missing or damaged seals. The purchaser may reject product from bulk containers or packages with missing or damaged seals unless the purchaser's tests of representative samples, conducted in accordance with Sec. 5.1 and Sec. 5.2, demonstrate that the product meets the standard. Failure to meet the standard or absence of, or irregularities in, seals may be sufficient cause to reject a shipment.

9. Whether alternative security measures have been adopted to replace or augment the security measures set out in Sec. 6.2.4 and 6.2.5.

10. An affidavit of compliance or certified analysis or both, if required (Sec. 6.3).

III.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in this standard must be provided by the purchaser.

IV. Major Revisions. Major changes made to the standard in this revision include the following:

1. Minor boilerplate language updates in the following sections:
   - I.C. *Acceptance*
   - III. A. *Purchaser Options and Alternatives*
   - Section 2: References
   - Section 4: Requirements
   - 5.4 Notice of Nonconformance
   - 6.2.5.2 Chain of custody
   - 6.3 Affidavit of Compliance

V. Comments. If you have any comments or questions about this standard, please call AWWA Engineering and Technical Services at 303.794.7711, FAX at 303.795.7603; write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098; or email at standards@awwa.org.

AVA Documents
Document Sharing Hub

Full document details: ANSI AWWA B306-22
Copyright © 2022 by American Water Works Association. All Rights Reserved