ANSI/AWWA C521-18
First Edition

American Water Works Association

Dedicated to the World's Most Important Resource®

AWWA Standard

Plastic Ball Valves

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AWWA Standard

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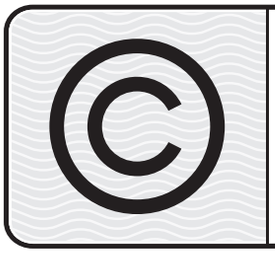

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Committee Personnel

The AWWA Standards Committee on Plastic Valves, which developed this standard, had the following personnel at the time of approval:

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Contents

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

Foreword

This foreword is for information only and is not a part of ANSI/AWWA C521.*

I. Introduction.

I.A. *Background.* Plastic ball valves have been in use since the 1950s. In 2001, the AWWA Standards Council received a request to develop a standard for plastic ball valves. As a result of this request, the AWWA Standards Council formed an exploratory ad hoc committee "to consider plastic ball valves, and to determine how best to arrive at an appropriate AWWA standard for such valves."

The ad hoc committee recommended "that the AWWA Standards Council establish a standards committee for the development of a standard in one document for plastic ball valves for water and other liquids as appropriate." On June 7, 2002, the council established the AWWA Standards Committee on Plastic Valves, and the committee held its first meeting at AWWA's Annual Conference & Exhibition (ACE) 2006.

I.B. *History.* This is the first edition of this standard, designated ANSI/AWWA C521-18, Plastic Ball Valves. The AWWA Board of Directors approved this edition on Oct. 24, 2018.

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). 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

1. Specific policies of the state or local agency.

* American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036.

† Persons outside the United States should contact the appropriate authority having jurisdiction.

2. Two standards developed under the direction of NSF*: NSF/ANSI 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.

3. Other references, including AWWA standards, *Food Chemicals Codex, Water Chemicals Codex,*† and other standards considered appropriate by the state, provincial, or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI 61 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 Annex A procedures may not always be identical, depending on the certifier.

ANSI/AWWA C521 does not address additives requirements. Users of this standard should consult the appropriate state, provincial, 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.

II.A. *Materials.* The materials section of this standard recognizes the advances that have been made in the development of nonmetallic materials for water ball valve construction. Plastic materials are currently being used for water ball valves; because of continual development of new and improved materials, this standard does not require any one specific material but cites examples of materials defined by ASTM specifications typically used at this time in the construction of water ball valves by manufacturers.

II.B. *Permeation*. The selection of materials is critical for water service and distribution piping in locations where there is likelihood the pipe will be exposed to

* NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105

† Both publications available from National Academy of Sciences, 500 Fifth Street NW, Washington, DC 20001.

significant concentrations of pollutants composed of low-molecular-weight petroleum products or organic solvents or their vapors. Documented research has shown that pipe materials (such as polyethylene and polyvinyl chloride) and elastomers, such as those used in jointing gaskets and packing glands, are subject to permeation by low-molecular-weight organic solvents or petroleum products. If a water pipe must pass through such a contaminated area or an area subject to contamination, consult with the manufacturer regarding permeation of body walls, jointing materials, etc., *before* selecting materials for use in that area.

II.C. *Chlorine and Chloramine Degradation of Elastomers.* The selection of materials is critical for water service and distribution piping in locations where there is a possibility that elastomers will be in contact with chlorine or chloramines. Documented research has shown that elastomeric gaskets, seals, valve seats, and encapsulations may be degraded when exposed to chlorine or chloramines. The impact of degradation is a function of the type of elastomeric material, chemical concentration, contact surface area, elastomer cross section, environmental conditions, and temperature. Careful selection of and specifications for elastomeric materials and the specifics of their application for each water system component should be considered to provide long-term usefulness and minimum degradation (swelling, loss of elasticity or softening) of the elastomer specified.

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 items should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C521, Plastic Ball Valves, of latest revision.
2. Size of valve.
3. Type of joint.
4. pH or temperature of water.
5. Type of protective coating, if other than the standard of the coupling and pipe manufacturer.
6. Details of federal, state, and local requirements (Sec. 4.1).
7. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required (Sec. 4.1.1.1).
8. Type of material required for valve body (Sec. 4.1.2).
9. Type of material required for component parts (Sec. 4.1.1.2).

10. Internal working pressure and valve actuator operating conditions (Sec. 4.2.9.3).

11. Absence of stop-limiting devices (Sec. 4.2.9.5).

12. If the production test records described in Sec. 5.2 are to be provided.

13. Requirement for manufacturer to provide an Affidavit of Compliance (Sec. 6.3).

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

IV. Major Revisions. None as this is the first edition of the standard.

V. Comments. If you have any comments or questions about this standard, please contact 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 e-mail at standards@awwa.org.

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Plastic Ball Valves

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes plastic ball valves for water supply service. This standard covers threaded, union, fusion, or compression ended double- and single-seated nonmetallic ball valves for pressures 100 psi (689 kPa) and higher in sizes from ½-in. through 2-in. (13-mm through 50-mm) diameter for use in potable water systems with temperatures greater than 32°F (0°C) and less than 125°F (52°C).

1.1.1 *Installation*. The performance of products depends on proper installation. The purchaser must follow instructions supplied by or available from the manufacturer. If these instructions are not available, acceptable installation practices should be followed.

Sec. 1.2 Purpose

The purpose of this standard is to define the minimum requirements for water supply service plastic ball valves, including materials, design, testing, and shipping.

Sec. 1.3 Application

This standard can be referenced in specifications for purchasing and receiving plastic ball valves. This standard can be used as a guide for manufacturing this type of valve. The stipulations of this standard apply when this document has been