



**American Water Works
Association**

The Authoritative Resource on Safe Water®

ANSI/AWWA D102-06
(Revision of ANSI/AWWA D102-03)

AWWA Standard

Coating Steel Water-Storage Tanks



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AWWA Standard

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA D102.

I. Introduction.

I.A. *Background.* The object of this standard is to provide an outline of methods and coating systems that can be used when coating or recoating steel tanks for water storage. Several months before the final approval of ANSI/AWWA D102-03, the AWWA Standards Committee on Steel Elevated Tanks, Standpipes and Reservoirs asked the Revision Task Force to start work on this edition. The final draft of this edition was submitted for Steel Tank Committee ballot on Dec. 19, 2005.

I.B. *History.* The first edition of this standard was prepared by a joint committee of AWWA and New England Water Works Association (NEWWA) and was approved as tentative on May 9, 1952. Revisions were made on June 2, 1953, May 24, 1954, and Aug. 5, 1955. The second edition was approved as tentative on Jan. 23, 1962, and was approved by the AWWA Board of Directors on Feb. 11, 1964. The third edition of this standard was approved on Jan. 28, 1978, and subsequently withdrawn on June 23, 1991. ANSI/AWWA D102 was reissued as the fourth edition and subsequently approved on Feb. 2, 1997. The fifth edition was approved on Jan. 19, 2003. This sixth edition was approved on June 11, 2006.

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 all direct and indirect drinking water additives. Other members of the original consortium included the American Water Works Association Research Foundation (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

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

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF International, NSF*/ANSI† 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.
4. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,‡ and other standards considered appropriate by the state 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 D102 does not address additives requirements. Users of this standard should 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 all 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.

*NSF International, 789 N. Dixboro Road, Ann Arbor, MI 48113.

†American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

‡Both publications available from National Academy of Sciences, 500 Fifth Street N.W., Washington, DC 20001.

III. Use of This Standard. It is the responsibility of the user of this AWWA standard to determine that the products described in this 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 D102, Coating Steel Water-Storage Tanks, of latest revision.
2. Size, shape, height, and location of structure.
3. ANSI/AWWA D102 contains optional requirements that the purchaser may incorporate into the project documents.
4. Details of other federal, state or provincial, and local requirements (Sec. 4.0).
5. Required coating systems (including finish color) to be used for interior and exterior surfaces (Sec. 4.0).
6. SSPC-SP10/NACE requirements (Sec. 4.0).
7. Required documentation of paint test or field service data (Sec. 4.1).
8. Required number of dry-film thickness measurements (Sec. 5.1).
9. Quality control test and recording requirements (Sec. 5.1).
10. First anniversary inspection requirements (Sec. 5.2).
11. Establish the date, method, and responsible party for first anniversary inspection (Sec. 5.2).
12. Requirement for delivery of an Affidavit of Compliance (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 revisions made to the standard in this revision include the following:

1. References made to federal and military paint specifications for various inside and outside coating systems have been replaced with applicable references to SSPC coating standards and specifications.
2. Testing and certification in accordance with NSF/ANSI 61, Drinking Water System Components—Health Effects, for inside coating systems has been made a requirement of this standard (see Sec. 4.3.1).
3. Preconstruction primers may be used when specified.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer & Technical Support Group at 303.794.7711, FAX at 303.795.7603, write to the group at 6666 West Quincy Avenue, Denver, CO 80235-3098, or e-mail standards@awwa.org.

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ANSI/AWWA D102-06
(Revision of ANSI/AWWA D102-03)

AWWA Standard

Coating Steel Water-Storage Tanks

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes coating systems for coating and recoating the inside and outside surfaces of steel tanks used for potable water storage in water supply service. Coating systems for new bolted steel tanks are not described in this standard (see ANSI/AWWA D103).

Sec. 1.2 Purpose

The purpose of this standard is to provide the minimum requirements for coating steel water-storage tanks, including materials, coating systems, surface preparation, application, and inspection and testing.

Sec. 1.3 Application

This standard can be referenced in purchase documents for coating steel water-storage tanks. The stipulations of this standard apply when this document has been referenced and only to coating steel water-storage tanks.

SECTION 2: REFERENCES

This standard references the following documents. These documents in the edition specified, or latest edition if not specified, form a part of this standard to the extent specified within the standard. In any case of conflict, the requirements of this standard shall prevail.

AAMA* 2604—Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.

ANSI†/AWWA C210—Liquid Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines.

ANSI/AWWA C222—Polyurethane Coatings for the Interior and Exterior of Steel Water Pipe and Fittings.

ANSI/AWWA D100—Welded Carbon Steel Tanks for Water Storage.

ANSI/AWWA D103—Factory-Coated Bolted Steel Tanks for Water Storage.

EMMAQUA‡—Equatorial Mount with Mirrors for Acceleration with Water.

NACE§ RP0188—Discontinuity (Holiday) Testing of Protective Coatings.

NSF**/ANSI 61—Drinking Water System Components—Health Effects.

SSPC††-PA 2—Measurement of Dry Coating Thickness with Magnetic Gages.

SSPC-PS Guide 17.00—Painting System Guide 17.00, Guide for Selecting Urethane Painting Systems.

SSPC-PS 24.00—Latex Painting System for Industrial and Marine Atmospheres, Performance-Based.

SSPC-PS 27.00—Alkyd Coating System Materials Specification, Performance-Based.

SSPC-Paint 20—Zinc-Rich Coating (Type I, Inorganic, and Type II, Organic).

SSPC-Paint 21—White or Colored Silicone Alkyd Paint (Type I, High Gloss, and Type II, Medium Gloss).

*American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 104, Schaumburg, IL 60173.

†American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

‡Atlas Material Testing Technology LLC, 414 Ravenswood Avenue, Chicago, IL 60613.

§NACE International, 1440 South Creek Drive, Houston, TX 77084.

**NSF International, 789 N. Dixboro Road, Ann Arbor, MI 48113.

††SSPC: The Society for Protective Coatings, 40 24th Street, Sixth Floor, Pittsburgh, PA 15222.

SSPC-Paint 22—Epoxy Polyamide Paints (Primer, Intermediate, and Topcoat).

SSPC-Paint 35—Medium Oil Alkyd Primer (Air Dry/Low Bake), Type I and Type II.

SSPC-Paint 36—Two-Component Weatherable Aliphatic Polyurethane Topcoat, Performance-Based.

SSPC-Paint 101—Aluminum Alkyd Paint, Leafing (Type I) and Non-Leafing (Type II).

SSPC-SP6/NACE No. 3—Commercial Blast Cleaning.

SSPC-SP7/NACE No. 4—Brush-Off Blast Cleaning.

SSPC-SP10/NACE No. 2—Near-White Blast Cleaning.

SSPC-SP11—Power Tool Cleaning to Bare Metal.

SSPC-SP15—Commercial Grade Power Tool Cleaning.

SSPC-SP COM—Surface Preparation Commentary for Steel and Concrete Substrates.

SSPC TU 3—Overcoating.

SECTION 3: DEFINITIONS

The following definitions shall apply in this standard:

1. *Coating*: Liquid, powder, or mastic composition that has been converted to a solid, durable, and functional adherent film after application as a thin layer.
2. *Constructor*: The party that furnishes the work and materials for placement or installation.
3. *Exterior surfaces*: External surfaces of the tank roof, shell, pedestal, legs, accessories, and appurtenances that are exposed to the elemental atmosphere.
4. *Inaccessible areas*: Areas of the finished structure that, by virtue of the configuration of the completed structure, cannot be accessed to perform surface preparation or coating application (with or without the use of scaffolding, rigging, or staging). Inaccessible areas include such areas as the contact surfaces of roof plate lap joints, underside of roof plates where they cross supporting members, top surface of rafters directly supporting roof plates, contact surfaces of bolted connections, underside of column base plates, contact surfaces of mating parts not intended to be removed or disassembled during routine operation or maintenance of the tank, underside of the tank bottom for ground-supported flat-bottom tanks, and inside of risers less than 36 in. in diameter.