



**American Water Works
Association**

The Authoritative Resource on Safe Water®

ANSI/AWWA C209-13
(Revision of ANSI/AWWA C209-06)

AWWA Standard

Cold-Applied Tape Coatings for Steel Water Pipe, Special Sections, Connections, and Fittings



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6666 West Quincy Avenue
Denver, CO 80235-3098
T 800.926.7337
www.awwa.org

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AWWA Standard

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Committee Personnel

The Steel Water Pipe-Manufacturer's Technical Advisory Committee (SWMPTAC) Task Group for AWWA C209, which reviewed this standard, had the following personnel at the time:

Don Kathrein, *Chair*

John Wise, *Vice-Chair*

| | |
|---|--------|
| J. Bissett, Scapa North America, Mukilteo, Wash. | (AWWA) |
| B. Buchanan, Canusa-CPS, Toronto, Ont. | (AWWA) |
| R. Dublin, Canusa-CPS, The Woodlands, Texas | (AWWA) |
| A. Fletcher, Pentair, Melbourne, Australia | (AWWA) |
| D. Kathrein, Tapecoat Company, Evanston, Ill. | (AWWA) |
| B.D. Keil, Northwest Pipe Company, Pleasant Grove, Utah | (AWWA) |
| A. Mamish, Berry Plastics, Lexington, Mass. | (AWWA) |
| L. McKinney, Womble Company Inc., Houston, Texas | (AWWA) |
| R.D. Mielke, Northwest Pipe Company, Raleigh, N.C. | (AWWA) |
| R. Norsworthy, Polyguard Products Inc., Lancaster, Texas | (AWWA) |
| C. Smith, Lonestar Specialty Products LLC, Lone Star, Texas | (AWWA) |
| S. Smith, Berry Plastics, Solon, Ohio | (AWWA) |
| J.A. Wise, Canus International Sales Inc., Surrey, B.C. | (AWWA) |

The AWWA Standards Committee on Steel Pipe, which reviewed and approved this standard, had the following personnel at the time of approval:

John H. Bambei Jr., *Chair*

Dennis Dechant, *Vice-Chair*

John Luka, *Secretary*

General Interest Members

| | |
|--|--------|
| W.R. Brunzell, Brunzell Associates Ltd., Skokie, Ill. | (AWWA) |
| R.J. Card, Lockwood, Andrew & Newnam, Houston, Texas | (AWWA) |
| R.L. Coffey, HDR Engineering Inc., Omaha, Neb. | (AWWA) |
| H.E. Dunham, MWH Inc., Snohomish, Wash. | (AWWA) |
| S.N. Foellmi, Black & Veatch Corporation, Irvine, Calif. | (AWWA) |

| | |
|---|--------|
| M.B. Horsley,* Horsley Engineering LLC, Overland Park, Kan. | (AWWA) |
| R.L. Gibson, Freese and Nichols Inc., Fort Worth, Texas | (AWWA) |
| J.K. Jeyapalan, Pipeline Consultant, New Milford, Conn. | (AWWA) |
| R.A. Kufaas, Norske Corrosion & Inspection Services Ltd., Surrey B.C. | (AWWA) |
| J.L. Mattson, Corrosion Control Technologies, Sandy, Utah | (AWWA) |
| W.J. Moncrief,* HDR Engineering Inc., San Diego, Calif. | (AWWA) |
| E.N. Olson,† Standards Council Liaison, Brown and Caldwell, Gold Hill, Ore. | (AWWA) |
| R. Ortega,* Lockwood Andrews & Newnam, Houston, Texas | (AWWA) |
| E.S. Ralph,† Standards Engineer Liaison, AWWA, Denver, Colo. | (AWWA) |
| A.E. Romer, AECOM, Newport Beach, Calif. | (AWWA) |
| J.R. Snow,* MWH Americas Inc., Denver, Colo. | (AWWA) |
| H.R. Stoner, Consultant, North Plainfield, N.J. | (AWWA) |
| C.C. Sundberg, CH2M HILL Inc., Issaquah, Wash. | (AWWA) |
| W.R. Whidden, Woolpert, Orlando, Fla. | (AWWA) |

Producer Members

| | |
|--|--------|
| S.A. Arnaout, Hanson Pressure Pipe Inc., Dallas, Texas | (AWWA) |
| H.R. Bardakjian, Consultant, Glendale, Calif. | (AWWA) |
| R.R. Carpenter, American SpiralWeld Pipe Company, Birmingham, Ala. | (MSS) |
| D. Dechant, Dechant Infrastructure Service, Aurora, Colo. | (AWWA) |
| W.B. Geyer, Steel Plate Fabricators Associates, Lake Zurich, Ill. | (AWWA) |
| B.D. Keil, Northwest Pipe Company, Pleasant Grove, Utah | (AWWA) |
| J.L. Luka,* American SpiralWeld Pipe Company, Columbia, S.C. | (AWWA) |
| R. Mielke,* Northwest Pipe Company, Raleigh, N.C. | (AWWA) |
| J. Olmos, Ameron International, Ranch Cucamonga, Calif. | (AWWA) |
| G.F. Ruchti,* Consultant, Punta Gorda, Fla. | (AWWA) |
| D. Walker, Avid Protective Products Ltd/Tnemec Co., Oakville, Ont. | (AWWA) |
| J.A. Wise, Canus International Sales Inc., Surrey, B.C. | (AWWA) |

User Members

| | |
|--|--------|
| G.A. Andersen, New York City Bureau of Water Supply, Little Neck, N.Y. | (AWWA) |
| J.H. Bambei Jr., Denver Water, Denver, Colo. | (AWWA) |
| B. Cheng, Metro Vancouver, Burnaby, B.C. | (AWWA) |

* Alternate

† Liaison, nonvoting

| | |
|---|--------|
| R.V. Frisz, US Bureau of Reclamation, Denver, Colo. | (USBR) |
| G. George, Tacoma Public Utilities, Tacoma, Wash. | (AWWA) |
| T.J. Jordan, Metropolitan Water District of Southern California, La Verne, Calif. | (AWWA) |
| M. McReynolds,* Metropolitan Water District of Southern California, Oak Park, Calif. | (AWWA) |
| G. Oljaca,* Metro Vancouver, Burnaby, B.C. | (AWWA) |
| G.P. Stine, San Diego County Water Authority, San Diego, Calif. | (AWWA) |
| N.A. Wigner, Los Angeles Department of Water & Power, Los Angeles, Calif. | (AWWA) |
| J.V. Young, City of Richmond, Richmond, B.C. | (AWWA) |

* Alternate

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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.

| SEC. | PAGE | SEC. | PAGE |
|-----------------|---|---------------|--|
| Foreword | | 4.3 | Material Requirements4 |
| I | Introduction.....ix | 4.4 | Coating Application (Field and Shop).....6 |
| I.A | Background.....ix | 4.5 | Field Procedures8 |
| I.B | History.....ix | 5 | Verification |
| II | Special Issues.....ix | 5.1 | Coating Materials Prequalification9 |
| II.A | Advisory Information on Product Application.....ix | 5.2 | Prequalification of Coating Materials Testing.....9 |
| II.B | Mechanical Protection.....x | 5.3 | Quality Assurance and Records.....10 |
| II.C | Pipe Storagex | 5.4 | Inspection and Testing by the Purchaser10 |
| II.D | Weld-After-Backfillx | 5.5 | Quality Control Requirements of Coating Systems (Field and Shop).....10 |
| III | Use of This Standardxi | 5.6 | Rejection13 |
| III.A | Purchaser Options and Alternativesxi | 6 | Delivery |
| III.B | Modification to Standardxii | 6.1 | Marking.....13 |
| IV | Major Revisions.....xii | 6.2 | Packaging and Shipping13 |
| V | Commentsxii | 6.3 | Affidavit of Compliance14 |
| Standard | | Tables | |
| 1 | General | 1 | Properties of Tape and Coatings Type I and Type II5 |
| 1.1 | Scope1 | 2 | Prequalification Requirements of Coating System Type I and Type II5 |
| 1.2 | Purpose2 | 3 | Quality Control Requirements of Applied Coating System, Type I and Type II12 |
| 1.3 | Application.....2 | | |
| 2 | References2 | | |
| 3 | Definitions3 | | |
| 4 | Requirements | | |
| 4.1 | General4 | | |
| 4.2 | Materials and Workmanship4 | | |

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C209.*

I. Introduction.

I.A. *Background.* Coatings for corrosion control can be extremely effective and are considered to be the primary line of defense against corrosion of steel pipeline systems. The requirements of a coating vary with the type of construction, the aggressiveness of the environment in which it will serve, and the system operating conditions. Cold-applied tapes provide ease of application without the use of special equipment and can be applied over a broad application temperature range.

I.B. *History.* The first edition of this standard, designated ANSI/AWWA C209-76, Standard for Cold-Applied Tape Coatings for Special Sections, Connections, and Fittings, was approved by the Board of Directors on June 20, 1976. The second edition, designated ANSI/AWWA C209-84, with the same title, was approved on June 10, 1984, and added shop and field blast cleaning to the coating and application section and revised the maximum overlap requirements. The third edition, ANSI/AWWA C209-90, was approved on June 17, 1990, and established new minimum thicknesses for prefabricated tape rolls and included information on new methods of application using wrapping machines. The fourth edition was approved on Jan. 23, 2000, and added information concerning alternative surface preparation application methods. The fifth edition was approved on June 11, 2006. This sixth edition was approved on Jan. 20, 2013.

II. Special Issues.

II.A. *Advisory Information on Product Application.* Currently, tape coatings for special sections, connections, and fittings for underground steel water pipelines generally are used on pipe that has been coated before transportation to the field site. Where allowed by the purchaser, tapes described in ANSI/AWWA C209 can be used in conjunction with pipe coatings described in ANSI/AWWA C203, Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines—Enamel and Tape—Hot-Applied; ANSI/AWWA C210, Standard for Liquid-Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines; ANSI/AWWA C213, Standard for Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines; ANSI/AWWA C214, Standard for Tape Coating Systems for the Exterior of Steel

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

Water Pipelines; ANSI/AWWA C215, Standard for Extruded Polyolefin Coatings for the Exterior of Steel Water Pipelines; and ANSI/AWWA C216, Standard for Heat-Shrinkable Cross-Linked Polyolefin Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines. However, the compatibility of coating systems is a concern, and the manufacturer of tape described in this standard should be consulted to establish the degree of compatibility with the pipe-coating system involved.

ANSI/AWWA C209 defines cold-applied tape coating in terms of its performance or its ability to provide long-term protection and corrosion prevention. This standard is intended for use in the exterior coating of steel water pipelines for underground or underwater installation under normal conditions. This standard is based on the best-known experience, but is not intended for unqualified use under all conditions, and the advisability of its use for any installation must be reviewed by the purchaser. If an extended period of aboveground storage of coated pipe is anticipated, the ability of the coating to resist degradation by ultraviolet light and other atmospheric and environmental conditions should be considered.

II.B. *Mechanical Protection.* When construction or soil conditions exist in which mechanical damage to the coating is likely to occur, the use of an extra thickness of tape, suitable overwrap, and reinforcements or special backfills may be required. This will depend on the conditions encountered, but in general, an extra thickness of tape or other wrapping should be used. It should be spiral-wrapped, if possible, and bonded or mechanically held in place. Under these conditions, the tape manufacturer should be consulted for specific recommendations.

II.C. *Pipe Storage.* Because aboveground and environmental conditions for storage sites vary, the manufacturer should be consulted regarding the type of wrap recommended for the specific anticipated storage condition and the necessity for ultraviolet-light protection.

II.D. *Weld-After-Backfill.* Weld-After-Backfill is the sequence of assembling a welded joint, welding the outside joint (if required), applying the exterior coating(s), backfilling the pipe, and then welding the inside joint at a later time (where internal welding is safe and practical). The interior joint may not be welded until the applied exterior joint coating has been backfilled. Weld-After-Backfill is an acceptable practice provided that the requirements of applicable AWWA standards are followed. Consult with the manufacturers and other responsible parties regarding recommended products, installation, and backfill procedures required for the Weld-After-Backfill sequence. At the request of the purchaser, the coating manufacturer will provide testing or historical

information to verify that the exterior joint coating will retain performance requirements in accordance with the applicable standard throughout the heat-affected area.

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 C209, Cold-Applied Tape Coatings for Steel Water Pipe, Special Sections, Connections, and Fittings, of latest revision.
2. Any required exceptions to the standard.
3. Operating temperature range (Sec. 1.1.1).
4. Descriptions of difficult conditions or aboveground exposure (Sec. 1.1.2).
5. Type of tape (Sec. 4.3.2.1).
6. Tape dimensions (Sec. 4.3.2.3).
7. Tape thickness (Sec. 4.3.2.4).
8. Visual-comparative standards (Sec. 4.4.2.3).
9. Adhesive solvents (Sec. 4.4.3).
10. Step-down areas (Sec. 4.4.4).
11. Tape-coating-system total thickness (Sec. 4.4.5). NOTE: The specific application procedure used for each type of coating system is as described by the tape manufacturer. The total thickness to be used is at the discretion of the purchaser, with consideration of the tape manufacturer's recommendations.
12. Coating repair (Sec. 4.4.6).
13. Pipe bedding and backfills (Sec. 4.5.1).
14. Optional inspection (Sec. 5.4.1).
15. Facilities for inspection (Sec. 5.4.3).
16. Acceptance testing (Sec. 5.5). NOTE: When the purchaser specifies that samples of proposed materials shall be submitted for testing by the purchaser, the purchaser should also address the assignment of associated testing costs. Common industry practice in these cases is that the cost of initial testing of coating-material samples originally offered by the constructor is borne by the purchaser. If any initial samples fail to conform to the standard, additional samples can be tested. Costs of testing additional samples are borne by the constructor.
17. Delivering pipe (Section 6).
18. Packaging (Sec. 6.2.1).
19. Affidavit of compliance, 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. The major changes made to the standard in this edition include the following:

1. The title of the standard was changed to be consistent with other AWWA steel pipe standards.

2. Section 2, References, was updated.

3. Table 1 was revised.

4. Sec. 4.3, Material Requirements, was revised to include prequalification requirements of the coating system (Table 2) and quality control requirements of the applied coating system (Table 3).

5. The requirements for abrasive blast cleaning were revised (Sec. 4.4.2.2).

6. The requirements for tape coating repair were revised (Sec. 4.4.6).

7. Sec. 4.5, Field Procedures, was rewritten to conform to the language used in other AWWA steel pipe coating standards.

8. The handling, bedding, and backfill information included in the previous edition of ANSI/AWWA C209 in Sec. 4.5 has now been included in AWWA C604, and the reader is referred to ANSI/AWWA C604.

9. Section 5, Verification, was rewritten to be consistent with other AWWA steel pipe coating standards.

10. A new Sec. 5.2, Prequalification of Coating Materials Testing, was added.

11. Sec. 5.2.7, Cathodic Disbondment, was modified to further define the cathodic disbondment test evaluation method.

12. A new Sec. 5.3, Quality Assurance and Records, was added.

13. A new Sec. 5.4, Inspection and Testing by the Purchaser, was added.

14. A new Sec. 5.5, Quality Control Requirements of Coating Systems (Field and Shop), was added.

15. Sec. 5.5.3, Adhesion, was expanded to include additional requirements.

16. A new Sec. 5.6, Rejection, was added.

17. Appendix A was removed to be consistent with other steel pipe coating standards.

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.



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AWWA Standard

Cold-Applied Tape Coatings for Steel Water Pipe, Special Sections, Connections, and Fittings

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes protective exterior coatings that consist of cold-applied liquid adhesives and prefabricated tapes and their applications to special sections, connections, and fittings to be used for underground and underwater steel water pipelines protected with organic coatings, such as those described in ANSI*/AWWA C203, ANSI/AWWA C210, ANSI/AWWA C213, ANSI/AWWA C214, ANSI/AWWA C215, and ANSI/AWWA C216. These liquid adhesives and tapes can be used for repair of ANSI/AWWA C214 machine-applied coatings in accordance with the tape manufacturer's recommendations. These liquid adhesives and tapes are not intended for use with either exposed steel joints or sections of steel pipe where coatings of cement mortar or concrete have been applied directly onto the bare steel pipe. Tape coatings conforming to this standard may be field- or shop-applied.

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