ANSI/AWWA **C209-25**

(Revision of ANSI/AWWA C209-19)

AWWA Standard

Hand-Applied Tape Coatings for Steel Water Pipe and Fittings

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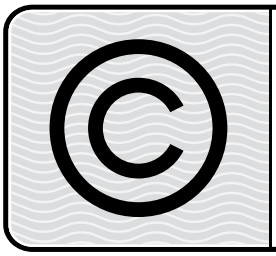
AWWA Standard

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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

Foreword

I Introduction vii
I.A Background vii
I.B History vii
II Special Issues vii
II.A Advisory Information on Product Application vii
II.B Mechanical Protection viii
II.C Pipe Storage ix
II.D Weld-After-Backfill ix
III Use of This Standard ix
III.A Purchaser Options and Alternatives ix
III.B Modification to Standard x
IV Major Revisions x
V Comments xi

Standard

1 General

1.1 Scope 1
1.2 Purpose 2
1.3 Application 2

2 References 2

3 Definitions 4

4 Requirements

4.1 Equipment 4
4.2 Materials and Workmanship 4
4.3 Coating System 5
4.4 Surface Preparation 6
4.5 Coating Application 7
4.6 Coating Fittings and Specials 8
4.7 Coating Repair 8
4.8 Field Joints 12
4.9 Field Procedures 12

5 Verification

5.1 Coating Materials Prequalification 13
5.2 Prequalification Requirements of the Tape System and Components 13
5.3 Quality Assurance and Records 14
5.4 Inspection and Testing by the Purchaser 16
5.5 Quality Control Requirements of Coating Systems (Field and Shop) 16
5.6 Rejection 18

6 Delivery

6.1 Marking 18
6.2 Packaging and Shipping 18
6.3 Affidavit of Compliance 19

Figures

1 Area to be Repaired 9
2 Repair Area Cut Back to Remove Raised Coating 9
3 Primer Applied to the Substrate and Surrounding Area 10

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SEC. PAGE

4 Inner Tape Applied Over the Damaged Area 10
5 Circumferential Wrap of Outer Wrap Applied Over the Inner Wrap 11
6 Patch Repair Showing the Longitudinal Strips Applied Over the Inner Wrap 12

SEC. PAGE

Tables

1 Prequalification Requirements of Inner Wrap Tape 15
2 Prequalification Requirements of Outer Wrap Tape (If Required) ... 15
3 Prequalification Requirements of the Total Coating System 15
4 Quality Control Requirements of Applied Coating System 17

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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. Hand-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 for Steel Water Pipelines, was approved by the Board of Directors on June 20, 1976. The second edition, designated ANSI/AWWA C209-84, Standard for Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines, 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, 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. Subsequent revisions to ANSI/AWWA C209 were approved by the AWWA Board of Directors on June 11, 2006; Jan. 20, 2013; and June 7, 2019. This edition was approved on Jan. 23, 2025.

II. Special Issues.

II.A. *Advisory Information on Product Application*. Often tape coatings are used on pipe that has been coated before transportation to the field site. ANSI/AWWA C209 hand-applied tape coatings are commonly utilized in conjunction with ANSI/AWWA C214 machine-applied tape coatings for special sections, fittings, connections, repairs, and field joints. Where allowed by the purchaser, tapes described in ANSI/AWWA C209 can be used in conjunction with pipe coatings described in:

- ANSI/AWWA C203—Coal-Tar Protective Coatings and Linings for Steel Water Pipe;

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- ANSI/AWWA C210—Liquid-Epoxy Coatings and Linings for Steel Water Pipe and Fittings;
- ANSI/AWWA C213—Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings;
- ANSI/AWWA C214—Machine-Applied Polyolefin Tape Coatings for Steel Water Pipe;
- ANSI/AWWA C215—Extruded Polyolefin Coatings for Steel Water Pipe;
- ANSI/AWWA C216—Heat-Shrinkable Cross-Linked Polyolefin Coatings for Steel Water Pipe and Fittings;
- ANSI/AWWA C222—Polyurethane Coatings and Linings for Steel Water Pipe and Fittings;
- ANSI/AWWA C224—Nylon-11-Based Polyamide Coatings and Linings for Steel Water Pipe and Fittings;
- ANSI/AWWA C225—Fused Polyolefin Coatings for Steel Water Pipe; and
- ANSI/AWWA C229—Fusion-Bonded Polyethylene Coatings for Steel Water Pipe and Fittings.

However, the compatibility of coating systems is a concern, and the coating manufacturer described in this standard should be consulted to establish the degree of compatibility with the pipe-coating system involved.

ANSI/AWWA C209 defines hand-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 (UV) 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 coating manufacturer should be consulted for specific recommendations.

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II.C. *Pipe Storage*. Because aboveground and environmental conditions for storage sites vary, the coating manufacturer should be consulted regarding the type of wrap recommended for the specific anticipated storage condition and the necessity for UV-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 coating 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, Hand-Applied Tape Coatings for Steel Water Pipe 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. Outer wrap tape (Sec. 4.3.1.3).
6. Step-down areas (Sec. 4.5.2).
7. Tape-coating-system total thickness (Sec. 4.5.3). NOTE: The specific application procedure used for each type of coating system is as described by the coating manufacturer. The total thickness to be used is at the discretion of the purchaser, with consideration of the coating manufacturer's recommendations.
8. Coating repair (Sec. 4.7).
9. Optional inspection (Sec. 5.4.1).
10. Facilities for inspection (Sec. 5.4.3).
11. Acceptance testing (Sec. 5.5).

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12. Frequency of adhesion testing and adhesion testing on fittings, repairs, specials, and appurtenances (Sec. 5.5.3.5).

13. Delivering pipe (Section 6).

14. Packaging (Sec. 6.2.1).

15. 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 revisions to this edition of the standard are summarized as follows:

1. Added Sec. 1.1.3 Other substrates to discuss considerations when C209 is referenced for substrates other than carbon steel.

2. Added the definition for fish mouth to Section 3 Definitions.

3. Added Sec. 4.3.2 Shelf life, Sec. 4.3.3 Qualification requirements, and Sec. 4.3.4 Coated pipe inspection tests for consistency with other steel pipe coating and lining standards.

4. Moved Table 1 Prequalification Requirements of the Inner Wrap Tape and Table 2 Prequalification Requirements of Outer Wrap Tape (If Required) to Sec. 5.2 for consistency with other steel pipe coating and lining standards.

5. Added considerations for mill scale removal to Sec. 4.4.3 Methods of cleaning.

6. Added a new Sec. 4.4.5 Overlapping coating to previous coating applications.

7. Added language to 4.5.2 Step-down areas to state when filler mastic is required.

8. Added a new Sec. 4.6 Coating Fittings and Specials.

9. Revised Sec. 4.7 Coating Repair and added new Figures 1 through 6 to provide better guidance.

10. Added a new Sec. 4.8 Field Joints.

11. Added adhesion to self, insulation resistance, and dielectric strength to Table 2 Prequalification Requirements of the Outer Wrap Tape (If Required).

12. Added new Sec. 5.2.8 Impact resistance, Sec. 5.2.9 Long-term water immersion, and Sec. 5.2.10 Penetration-deformation resistance and added these requirements to Table 3 Prequalification Requirements of the Total Coating System.

13. Revised Sec. 5.5.1 Coating appearance to be consistent with other steel pipe coating and lining standards.

14. Added clarifying language to Sec. 5.5.2 Electrical continuity inspection to assure that the holiday testing takes place before the outer layer is applied.

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15. The reference to ASTM D1000 was deleted from Sec. 5.5.3 Adhesion.

16. A new Sec. 5.5.3.3 was added for small pipe considerations.

17. In Sec. 5.5.3.5 Frequency of testing, the frequency of quality-control (QC) testing on pipes was revised.

18. Sec. 6.2.1 Packaging was revised to remove packaging sizes.

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

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ANSI/AWWA C209-25
(Revision of ANSI/AWWA C209-19)

AWWA Standard

Hand-Applied Tape Coatings for Steel Water Pipe and Fittings

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes protective coatings that consist of liquid adhesives and tapes and their applications to steel water pipe, joints, and fittings to be used for underground and underwater pipelines. Tape coatings conforming to this standard may be field- or shop-applied, without the use of heat (i.e., not hot-applied coatings), to uncoated pipe and fittings or as a joint coating to pipe and fittings protected with organic coatings, such as those described in ANSI*/AWWA C203, ANSI/AWWA C210, ANSI/AWWA C213, ANSI/AWWA C214, ANSI/AWWA C215, ANSI/AWWA C216, ANSI/AWWA C222, ANSI/AWWA C224, ANSI/AWWA C225, ANSI/AWWA C229, and ANSI/AWWA C232. These liquid adhesives and tapes can be used for repair of ANSI/AWWA C214 machine-applied coatings in accordance with the coating manufacturer's recommendations. These liquid adhesives and tapes are not intended for use with either exposed steel joints or sections of steel pipe where coating of cement mortar or concrete has been applied directly onto the bare steel pipe.

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