ANSI/AWWA C209-19
(Revision of ANSI/AWWA C209-13)

American Water Works Association
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AWWA Standard

Tape Coatings for Steel Water Pipe and Fittings

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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 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. Subsequent revisions to ANSI/AWWA C209 were approved by the AWWA Board of Directors on June 11, 2006, and Jan. 20, 2013. This edition was approved on June 7, 2019.

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—Coal-Tar Protective Coatings and Linings for Steel Water Pipe;
- ANSI/AWWA C210—Liquid-Epoxy Coatings and Linings for Steel Water Pipe and Fittings;

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- ANSI/AWWA C213—Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings;
- ANSI/AWWA C214—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 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, 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. 4.3.3).
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 tape manufacturer. The total thickness to be used is at the discretion of the purchaser, with consideration of the tape manufacturer's recommendations.
8. Coating repair (Sec. 4.6.1).
9. Pipe bedding and backfills (Sec. 4.7.1).
10. Optional inspection (Sec. 5.4.1).
11. Facilities for inspection (Sec. 5.4.3).
12. 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.

13. Frequency of adhesion testing, and adhesion testing on fittings, repairs, specials, and appurtenances (Sec. 5.5.3.4).

14. Delivering pipe (Section 6).

15. Packaging (Sec. 6.2.1).

16. 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.

1. The title of the standard was revised and the term "cold applied tape" removed since it is covered in the scope.

2. Throughout the document, the term "fabricated cold applied tape" was replaced with "tape" since the scope notes that hot applied tape is not covered in C209.

3. Sec. 1.1 Scope was revised to better reflect the intended scope of the standard.

4. Sec. 2 References was updated.

5. The definition for applicator was added to Sec. 3.

6. Sec. 4.1 Equipment was moved to be consistent with other AWWA steel pipe coating standards.

7. Sec. 4.2 Materials and Workmanship was revised and sections on safety and personnel were added to be consistent with other AWWA steel pipe coating standards.

8. In Sec. 4.3.1, the sentence regarding complying with pollution control requirements was deleted.

9. Sec. 4.3.2 was revised to cover the inner tape, and the reference to Type 1 and Type 2 tape was removed since the tape can now use either type with the same requirements.

10. Sec. 4.3.2.2 Form, Sec. 4.3.2.3 Dimensions, and Sec. 4.3.2.4 Thickness were deleted since the information provided was general and tapes can be supplied in various widths and roll lengths.

11. A new Sec. 4.3.3 on outer wrap tape was added.

12. Table 1 was revised to cover Prequalification Requirements for Inner Wrap Tape, and a minimum tape thickness was added.

13. A new Table 2 was added for Prequalification Requirements of Outer Wrap Tape (if required) and includes requirements for adhesion to inner wrap and width deviation.

14. A new Table 3 was added for Prequalification Requirements of the Total Coating System and includes requirements for adhesion to primed steel and cathodic disbondment.

15. Sec. 4.4 Surface Preparation was revised in an effort to begin to establish consistent language between similar AWWA steel pipe coating and lining standards.

16. In Sec. 4.4.3 Methods of cleaning, the minimum required cleanliness for dry blast cleaning was changed from SSPC-SP 6 to SSPC-SP 7, and SSPC-SP 2 was added as a new minimum required cleanliness for tool cleaning.

17. In Sec. 4.5.1 Priming, the reference to emission regulations was removed.

18. In Sec. 4.5.3 Coating and wrapping, the overlap was reduced from 3 in. to 2 in.

19. In Sec. 5.2.4 Water vapor transmission, the test method was updated to be consistent with other AWWA steel pipe coating standards.

20. Sec. 5.5.2.1 through Sec. 5.5.2.6 were deleted from Sec. 5.5.2 Electrical continuity inspection, since this language was taken directly from NACE SP0274 which is referenced in Sec. 5.5.2 and will send the reader to the original document.

21. Sec. 5.5.3.4 Frequency of testing was updated with more current language.

22. Sec. 6.2.2 Shipping, handling, and storage was updated to be consistent with other AWWA steel pipe coating standards.

23. Sec. 6.3 Affidavit of Compliance was modified to include an affidavit for workmanship. Similar language has been added to other AWWA steel pipe coating and lining 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 e-mail at standards@awwa.org.

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AWWA Standard

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 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 and ANSI/AWWA C229. 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 coating of cement mortar or concrete has been applied directly onto the bare steel pipe.

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