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Standard
Recommended Practice

Application, Performance, and Quality Control of Plant-Applied, Fusion-Bonded Epoxy External Pipe Coating

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Foreword

This standard recommended practice presents guidelines for establishing requirements to ensure proper application and performance of plant-applied, fusion-bonded epoxy (FBE) coatings to the external surfaces of pipe. It is intended for use by corrosion control personnel concerned with mitigation of corrosion on buried and submerged piping used for transportation and storage of oil, gas, water, and similar products.

This standard was originally prepared in 1994 by NACE Task Group T-10D-10, a component of Unit Committee T-10D on Protective Coating Systems. It was revised in 2002 by NACE Task Group 031. This Task Group was administered by Specific Technology Group (STG) 03 on Protective Coatings and Linings—Immersion/Buried. Sponsoring STGs also included STG 05 on Cathodic/Anodic Protection; and STG 35 on Pipelines, Tanks, and Well Casings. This standard is issued by NACE International under the auspices of STG 03.[1, 2]

In NACE standards, the terms *shall*, *must*, *should*, and *may* are used in accordance with the definitions of these terms in the *NACE Publications Style Manual*, 4th ed., Paragraph 7.4.1.9. *Shall* and *must* are used to state mandatory requirements. The term *should* is used to state something considered good and is recommended but is not mandatory. The term *may* is used to state something considered optional.

[1] With permission of Canadian Standards Association (CSA), portions of this standard have been reproduced from CSA Standard Z245.20-M 98, “External Fusion Bonded Epoxy Coated Steel Pipe,” (Copyright CSA, 1986). Copies of Z245.20-M 98 may be purchased from CSA, 178 Rexdale Boulevard, Toronto, Ontario, Canada, M9W 1R3.

[2] With permission of the American Petroleum Institute, portions of this standard have been reproduced from API RP 5L7, “Recommended Practices for Unprimed Internal Fusion Bonded Epoxy Coating of Line Pipe,” Second Edition, June 30, 1988, American Petroleum Institute Publications and Distribution Section, 1220 L Street, NW, Washington, DC 20005.

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Contents

Section 1: General

1.1 This standard presents guidelines for establishing minimum requirements to ensure proper application and performance of plant-applied, fusion-bonded epoxy (FBE) coatings to the external surfaces of pipe.

1.2 The function of such coatings is to prevent corrosion when used in conjunction with cathodic protection.

1.3 This standard suggests or describes methods for qualifying and controlling the quality of FBE pipe coatings, provides guidelines for their proper application, and identifies inspection and repair techniques to obtain the best applied FBE coating system.

Section 2: Definitions

Applicator: The organization responsible to the purchaser for the coating application.

Batch: The quantity of coating material produced during a continuous production run of not more than eight hours.

Coating: A liquid, liquefiable, or mastic composition that, after application to a surface, is converted into a solid protective, decorative, or functional adherent film.

Coating material: Epoxy powder.

Cutback: The length of pipe left uncoated at each end for joining purposes (e.g., welding).

Holiday: A discontinuity in a protective coating that exposes unprotected surface to the environment.

Inspector: The authorized agent of the purchaser.

MSDS: Material safety data sheet.

PD: Pipe diameter.

Purchaser: The owner company or the authorized agency that purchases the coated pipe.

Supplier: The manufacturer or distributor of the coating material and its authorized technician.

Section 3: Coating Material

3.1 Coating Supplier Information

3.1.1 The coating material supplier shall furnish to both the purchaser and the applicator the following information in a written form upon request:

3.1.1.1 Directions for handling and storage of the coating material,

3.1.1.2 Specification of the basic physical properties and laboratory performance test results,

3.1.1.3 Certification of the determined physical properties of each batch of material, and

3.1.1.4 Material safety data sheets.

3.2 Handling of Coating Materials

3.2.1 Coating material batches shall be identified by a batch coding system devised by the supplier. The batch code shall include a reference to the date of manufacture. Coating materials shall be shipped and stored under cover according to the supplier's recommendations and in such a manner that contamination or adverse effects on application are avoided.

3.2.2 Shelf Life

All batches on receipt and any batch of coating material that has exceeded the supplier's recommended shelf life shall be subject to coating material verification tests by the manufacturer (see Paragraph 7.3.2) prior to use.

3.2.3 Copies of all records of testing by the applicator or manufacturer shall be supplied to the purchaser or purchaser's representative within 24 hours of the test or as agreed to in the preproduction meeting(s).

3.3 Coating Material Properties

3.3.1 It is the supplier's responsibility to perform the tests cited by reference in this section. The purchaser or applicator may also perform any or all of the cited tests as part of a quality assurance program.

3.3.2 The coating material shall meet the value limits for the properties listed in Table 1.