



NACE Standard RP0105-2005
Item No. 21106

Standard Recommended Practice

Liquid-Epoxy Coatings for External Repair, Rehabilitation, and Weld Joints on Buried Steel Pipelines

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Foreword

This standard recommended practice presents guidelines for establishing minimum requirements to ensure proper material selection, application, and inspection of pipeline liquid-epoxy coatings used for the repair and rehabilitation of previously coated pipelines and for coating field joints on the external surfaces of pipe. This standard is intended for use by corrosion control personnel, design engineers, project managers, purchasers, and construction engineers and managers.

Coating selection for repair, rehabilitation, and field joints on buried steel pipelines is determined by specific criteria relating to the project to be executed. In some cases, the factors limiting coating selection are similar to those considered during new pipeline coating activities, but when a pipeline is coated in the field there are additional factors that must be considered.

Liquid-epoxy coating repair, rehabilitation, or field joint coating can be applied in, over, or beside a ditch, whether the pipeline is in service, out of service, or segmented. Application is dependent on many factors, including temperature.

This standard was prepared by NACE Task Group 247 on Coatings, Liquid Epoxy for External Repair, Rehabilitations, and Weld Joints on Buried Steel Pipelines. This Task Group is administered by Specific Technology Group (STG) 03 on Coatings and Linings, Protective: Immersion and Buried Service. It is also sponsored by STG 04 on Coatings and Linings, Protective: Surface Preparation, and STG 35 on Pipelines, Tanks, and Well Casings. This standard is issued by NACE under the auspices of STG 03.

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Standard
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Section 1: General

1.1 This standard presents guidelines for establishing minimum requirements for material selection, surface preparation, proper application, inspection, and to ensure long-term coating performance of liquid-epoxy coatings applied to external pipe surfaces for coating repair, rehabilitation, or field joints.

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

1.3 This standard provides guidelines for proper surface preparation and coating application and identifies inspection and repair techniques to ensure long-term coating performance.

1.4 The material for external coating shall be approved by the owner. Once a coating formulation is accepted by the owner, it shall not be changed unless the owner is notified in writing.

1.5 The owner shall ensure that work is conducted in accordance with this standard and that quality is assured by qualified personnel such as NACE Coating Inspectors or equivalent (trained coating inspectors). The inspector shall

have an excellent knowledge of the application procedures and techniques generally used for high-performance coatings whether applied by brush, roller, or spray. The coating inspector should know the characteristics of air- and airless-spray plural components, and shall be familiar with the procedures used to apply coatings properly with such equipment.

1.6 The coating inspector (company representative) shall have access at all times to the work performed, in accordance with the company specifications, and shall have the right to inspect such work and all material furnished by the applicator.

1.7 For surface preparation and coating applications the applicator shall use coating personnel, equipment, and procedures that have been prequalified by the manufacturer and approved by the owner.

1.8 Users of this standard shall be responsible for specifying applicable safety, health, and environmental practices to ensure compliance with all applicable regulations, including compliance with insurance requirements and directives.

Section 2: Definitions

Applicator: The organization responsible for the coating application.

Backfill: Material placed in a hole to fill the space around the anodes, vent pipe, and buried components of a cathodic protection system.

Backfill Ready: The stage or degree of cure, which may not be full chemical cure, that the coating has attained that provides resistance to moisture absorption and toughness to handle mechanical stresses including abrasion and backfill.

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

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

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

Epoxy: Type of resin formed by the reaction of aliphatic or aromatic polyols (like bisphenol) with epichlorohydrin and characterized by the presence of reactive oxirane end groups.

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

Inspector: The authorized agent of the owner.

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

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