Measurement of Protective Coating Electrical Conductance on Underground Pipelines

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Document History

2023-01-23: Revised by AMPP Standards Committee (SC) 03, External Coatings – Buried and Immersed

2002-06-21: Developed by NACE Task Group 030 on Coating Conductance

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Foreword

This Association for Materials Protection and Performance (AMPP) standard test method presents guidelines and procedures for use primarily by corrosion control personnel in the pipeline industry to determine the general condition of a pipeline coating. These techniques are used to measure the coating conductance (inverse of coating resistance) on sections of underground pipelines. This test method applies only to pipe coated with dielectric coatings.

When surveying a coated pipeline system, it may be necessary to determine the conductance of the coating. The conductance of a coating can vary considerably along the pipeline. Variations may be caused by changes in average soil resistivity, terrain, and quality of construction. To obtain data for coating conductance calculations, interrupted structure-to-electrolyte potentials and line current readings are taken at pre-selected intervals. It should be noted that the average soil resistivity has a direct effect on the coating conductance measurement. Because soil resistivity can affect the coating conductance, it must be known when evaluating a section of a pipeline coating.

Scope

These techniques are used to measure the coating conductance (inverse of coating resistance) on sections of underground pipelines. This test method applies only to pipe coated with dielectric coatings.

Rationale

The standard test method required a review and revision to bring the latest specifications and definitions up to date. In addition, horizontal directionally drilled (HDD) information on low soil resistivity muds was expanded due to the corrosive nature of these drilling fluids.

Referenced Standards and Other Consensus Documents

ASTM International (ASTM), www.astm.org:

ASTM G57	Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method

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