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Standard
Test Method

Holiday Detection of Internal Tubular Coatings of Less Than 250 µm (10 mils) Dry-Film Thickness

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Foreword

This NACE standard test method was prepared as a guide for evaluating the application of polymeric coatings of less than 250 µm (10 mils) dry-film thickness to the internal surfaces of metallic tubular goods used in the oil and gas industry. It is not intended to provide a means of predicting the service life or service performance of these coatings. This test method is based on the current technology and experience of the petroleum production industry. NACE Standard TM0186[1] addresses holiday detection of internal tubular coatings of 250 to 760 µm (10 to 30 mils) dry-film thickness. This standard is intended for use by end users of internally plastic-coated (IPC) tubular goods and accessories, as well as applicators and coating inspectors.

This standard was originally prepared in 1984 by NACE Task Group T-1G-9 on Holiday Testing of Plastic Linings, a component of Unit Committee T-1G on Protective Coatings, Elastomers, and Other Nonmetallic Materials for Oilfield Use, and was reaffirmed by T-1G in 1989 and 1994. It was reaffirmed in 2002 by Specific Technology Group (STG) 33 on Oil and Gas Production—Nonmetallics and Wear Coatings (Metallics). This STG is comprised of representatives from the oil and gas industry including consumers, producers, and interested individuals. This standard is issued by NACE International under the auspices of STG 33.

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. *Should* is used that which is considered good and is recommended but is not absolutely mandatory. *May* is used to state that which is considered optional.

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Section 1: General

1.1 This NACE standard provides a nondestructive method for the detection of holidays in a nonconductive coating film that has been applied to the inner wall of oilfield tubular goods. The apparatus and the recommended procedure for conducting the test are described, as are methods of reporting the test data.

1.2 The test method applies to coatings that have a specified maximum dry-film thickness of 250 µm (10 mils). It is valid for coatings that have not been in service or previously tested with a salt solution. When holiday testing is performed on coatings that have been in service or that have been previously tested for holidays with a salt solution, there is a possibility of misleading results arising from surface contamination or salt bridging. The coating surface shall be free of materials that give added electrical insulation or that can mechanically damage the coating during the test.

1.3 A "holiday" is defined as a discontinuity in a protective coating that exposes unprotected surface to the environment. For this test method, it means an area of applied coating that exhibits electrical resistance of less than some specified value when that area is contacted with a wet sponge and detected with an appropriate instrument.

1.4 The specified resistance for holiday detection is 80,000 ohms ±10% when measured between the wet probe sponge and the pipe substrate.

1.5 Several internal tubular coatings have a manufacturers' specified thickness range of 200 to 330 µm (8 to 13 mils). These coatings shall be tested with a wet sponge at 67.5 V (DC) and 80,000 ohms (±10%) resistance.

Section 2: Test Apparatus

2.1 Apparatus and material required to perform this holiday test include a probe, a lance, a detector, and a wetting solution (see Figures 1 and 2).

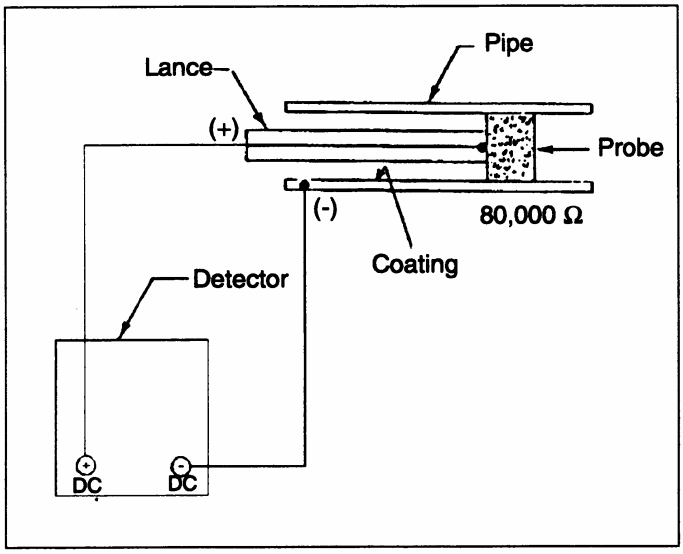

FIGURE 1
Holiday detection, less than 250 µm (10 mils)