



Designation: D4787 – 24

Standard Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates¹

This standard is issued under the fixed designation D4787; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers procedures that may be used for the detection of discontinuities in nonconductive linings or other non-conductive coatings applied to concrete substrates with or without a conductive underlayment.

1.2 Discontinuities may include pinholes, internal voids, holidays, cracks, and conductive inclusions.

1.3 This practice describes detection of discontinuities utilizing a high voltage spark tester using either pulsed or continuous dc voltage.

NOTE 1—For further information on discontinuity testing refer to NACE Standard Practice SP0188, Test Method G62, or Practice D5162.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For a specific hazard statement, see Section 7.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D149 Test Method for Dielectric Breakdown Voltage and

¹ This practice is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.46 on Industrial Protective Coatings.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

D5162 Practice for Discontinuity (Holiday) Testing of Non-conductive Protective Coating on Metallic Substrates

D6132 Test Method for Nondestructive Measurement of Dry Film Thickness of Applied Organic Coatings Using an Ultrasonic Coating Thickness Gage

G62 Test Methods for Holiday Detection of Coatings used to Protect Pipelines

2.2 *NACE Standards:*³

SP0188-2024 Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *conductive underlayment, n*—a continuous layer applied to the prepared concrete surface prior to the application of a nonconductive lining layer(s) that will allow high voltage spark testing for discontinuities in the lining, as it will conduct the current present when the spark is generated.

3.1.2 *current sensitivity, n*—control that can be used to prevent low levels of current flow from activating the audible alarm.

3.1.2.1 *Discussion*—Some high voltage testers have an adjustable alarm sensitivity control to set the threshold current at which the audible alarm sounds. If the high voltage can charge the lining, a small amount of current will flow while this charge is established. If the lining contains a pigment that allows a low-level leakage current to flow from the probe while testing the threshold current can be set so that the alarm does not sound until this current is exceeded, that is, when a holiday or flaw is detected. Increasing the current threshold setting makes the instrument less sensitive to this low-level current flow, decreasing the current threshold setting makes the instrument more sensitive to current flow.

3.1.3 *discontinuity, n*—a localized site in the coating or lining that has a dielectric strength less than a determined test voltage.

³ Available from NACE International (NACE), 1440 South Creek Dr., Houston, TX 77084-4906, <http://www.nace.org>.