



Designation: D3633/D3633M – 23

Standard Test Method for Electrical Resistivity of Membrane-Pavement Systems¹

This standard is issued under the fixed designation D3633/D3633M; 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 test method covers the measurement of the electrical resistivity of water-barrier membrane-pavement systems when applied to concrete bridge decks.

1.2 Measurements shall be performed on the bituminous pavement surface covering the water-barrier membrane.

1.3 This test method utilizes a measure of electrical resistance between the saturated top surface of the water-barrier membrane and the reinforcing steel embedded in the concrete bridge deck.

1.4 The values measured represent the electrical resistance obtained with the equipment and procedures stated herein and do not necessarily agree or correlate with those using other equipment or procedures.

1.5 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.6 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.7 *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.*

1.8 *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

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

D8 Terminology Relating to Materials for Roads and Pavements

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D3743 Terminology Relating to Bridge Deck and Substructure Protection (Withdrawn 2004)³

E105 Guide for Probability Sampling of Materials

3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminologies **D3743** and **D8**.

4. Significance and Use

4.1 This test method for measuring the electrical resistivity of water-barrier membrane-pavement systems may be interpreted to indicate the effectiveness of such systems.

4.2 This test method is predicated on the fact that an electrical connection between the surface of the pavement and the reinforcing steel in the concrete pavement cannot be made through an impermeable water-barrier membrane.

4.3 This test method may be used for acceptance when the accepting agency specifies the minimum resistance value desired.

NOTE 1—The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of Specification **D3666** are generally considered capable of competent and objective testing, sampling, inspection, etc. Users of this standard are cautioned that compliance with Specification **D3666** alone does not completely ensure reliable results. Reliable results depend on many factors; following the suggestions of Specification **D3666** or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.

¹ This test method is under the jurisdiction of ASTM Committee **D04** on Road and Paving Materials and is the direct responsibility of Subcommittee **D04.32** on Bridges and Structures.

Current edition approved July 1, 2023. Published July 2023. Originally approved in 1977. Last previous edition approved in 2019 as D3633/D3633M – 12 (2019). DOI: 10.1520/D3633_D3633M-23.

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

³ The last approved version of this historical standard is referenced on www.astm.org.