



Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures¹

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1. Scope

1.1 This test method covers procedures for preparing and testing asphalt concrete specimens for the purpose of measuring the effect of water on the tensile strength of the paving mixture. This test method is applicable to dense mixtures such as those appearing in the Table for Composition of Bituminous Paving Mixtures in Specification **D3515**. This test method can be used to evaluate the effect of moisture with or without antistripping additives including liquids and pulverulent solids such as hydrated lime or portland cement.

1.2 The values stated in either SI units or inch-pound units in parentheses shall be regarded separately as standard. The values in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

1.3 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

- D979** Practice for Sampling Bituminous Paving Mixtures
- D1074** Test Method for Compressive Strength of Bituminous Mixtures
- D1561** Practice for Preparation of Bituminous Mixture Test Specimens by Means of California Kneading Compactor
- D2041** Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- D2726** Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
- D3203** Test Method for Percent Air Voids in Compacted

¹ This test method is under the jurisdiction of ASTM Committee **D04** on Road and Paving Materials and is the direct responsibility of Subcommittee **D04.22** on Effect of Water and Other Elements on Asphalt Coated Aggregates.

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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.

Dense and Open Bituminous Paving Mixtures

- D3387** Test Method for Compaction and Shear Properties of Bituminous Mixtures by Means of the U.S. Corps of Engineers Gyratory Testing Machine (GTM)
- D3496** Practice for Preparation of Bituminous Mixture Specimens for Dynamic Modulus Testing (Withdrawn 2010)³
- D3515** Specification for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures (Withdrawn 2009)³
- D3549** Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens
- D3665** Practice for Random Sampling of Construction Materials
- D4013** Practice for Preparation of Test Specimens of Bituminous Mixtures by Means of Gyratory Shear Compactor (Withdrawn 2013)³
- D4123** Test Method for Indirect Tension Test for Resilient Modulus of Bituminous Mixtures (Withdrawn 2003)³
- D6926** Practice for Preparation of Bituminous Specimens Using Marshall Apparatus

3. Summary of Test Method

3.1 *Potential for Moisture Damage*—The degree of susceptibility to moisture damage is determined by preparing a set of laboratory-compacted specimens conforming to the job-mix formula without an additive. The specimens are compacted to a void content corresponding to void levels expected in the field, usually in the 6 to 8 % range. The set is divided into two subsets of approximately equal void content. One subset is maintained dry while the other subset is partially saturated with water and moisture conditioned. The tensile strength of each subset is determined by the tensile splitting test. The potential for moisture damage is indicated by the ratio of the tensile strength of the wet subset to that of the dry subset.

3.2 *Additive Effect*—The effect of an antistripping additive is determined on a set of specimens containing an additive prepared and tested as described in 3.1. The effect of an additive dosage may be estimated by repeating the tests on sets with different additive dosages.

3.3 *Plant-Produced Mixtures*—The potential for moisture damage or the effectiveness of an additive in a plant-produced

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