Designation: C1747/C1747M – 11

StandardTest Method for Determining Potential Resistance to Degradation of Pervious Concrete by Impact and Abrasion[1]

This standard is issued under the fixed designation C1747/C1747M; 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 determining the potential resistance to degradation of pervious concrete by measuring the mass loss of specimens subjected to combined action of impact and abrasion in a rotating steel drum.

1.2 *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.

1.3 The text of this test method references notes and footnotes that provide explanatory information. These notes and footnotes (excluding those in tables) shall not be considered as requirements of this test method.

1.4 *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.* (**Warning**—Fresh hydraulic cementitious mixtures are caustic and may cause chemical burns to skin and tissue upon prolonged use.[2])

2. Referenced Documents

2.1 *ASTM Standards:*[3]

C125 Terminology Relating to Concrete and Concrete Aggregates

C131 Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates

C172 Practice for Sampling Freshly Mixed Concrete

C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory

C470/C470M Specification for Molds for Forming Concrete Test Cylinders Vertically

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

C1688/C1688M Test Method for Density and Void Content of Freshly Mixed Pervious Concrete

D6926 Practice for Preparation of Bituminous Specimens Using Marshall Apparatus

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology C125.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *design density, n*—the mass of a unit volume of pervious concrete based on the theoretical mixture proportions and void content and where the unit volume includes the volume of the solids and the voids.

3.2.2 *raveling, n*—the wearing away of a pavement surface due to dislodgement of aggregate particles.

4. Summary of Test Method

4.1 This test method consists of casting cylindrical specimens of pervious concrete at the design density, then subjecting the cured specimens to a combination of actions including impact, abrasion or attrition, and grinding in a rotating steel drum. The potential resistance to degradation by impact and abrasion is expressed as the percentage mass loss after 500 revolutions of the steel drum. Higher potential resistance to degradation by impact and abrasion is associated with lower mass loss.

5. Significance and Use

5.1 This test method provides a procedure for evaluating the potential resistance to degradation by impact and abrasion of

[1] This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.49 on Pervious Concrete.

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[2] See Section on Safety Precautions, Manual of Aggregate and Concrete Testing, *Annual Book of ASTM Standards*, Vol. 04.02.

[3] 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.