



Designation: C1745/C1745M – 24

Standard Test Method for Measurement of Hydraulic Characteristics of Hydrodynamic Stormwater Separators and Underground Settling Devices¹

This standard is issued under the fixed designation C1745/C1745M; 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 concerns measurement of selected hydraulic characteristics of hydrodynamic separators and underground settling devices critical to their function as stormwater treatment devices.

1.2 Units tested shall be of a size commonly manufactured and available for purchase. In order to facilitate testing it is permissible to substitute alternate materials for the housing and structural components of the test units if operational components are at full size, with identical dimensions, configurations and materials specified for commercial use. Scale models are not permissible.

1.3 As each stormwater treatment device is unique in design, so are its hydraulic characteristics (flow versus head and loss coefficients). A sufficient number of accurately measured data points are needed to properly define the hydraulic characteristics of each test unit. Therefore, it is imperative that the unit setup and subsequent testing methodologies be well defined and executed to ensure accurate flow and elevation data.

1.4 The values stated in inch-pound units are to be regarded as standard, except for methods to establish and report sediment concentration and particle size. It is convention to exclusively describe sediment concentration in mg/L and particle size in mm or μm , both of which are SI units. The SI units given in parentheses are mathematical conversions, which are provided for information purposes only and are not considered standard. Reporting of test results in units other than inch-pound units shall not be regarded as non-conformance with this test method.

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.*

¹ This test method is under the jurisdiction of ASTM Committee E64 on Stormwater Control Measures and is the direct responsibility of Subcommittee E64.01 on Lab Evaluation.

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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

E3318 Terminology for Standards Relating to Stormwater Control Measures

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of common technical terms used in this standard, refer to Terminology E3318.

3.2 *Definitions of Terms Specific to This Standard:*

NOTE 1—The terms and definitions related to this standard also relate to other standards currently being balloted. As such they are being balloted separately in a single terminology document, Terminology E3318.

4. Summary of Test Method

4.1 This test method describes procedures and equipment required to measure the hydraulic characteristics of hydrodynamic separators and underground settling devices used for treating stormwater runoff.

5. Significance and Use

5.1 Each device has unique flow patterns and turbulence characteristics. In addition, each device exhibits a wide range of efficiencies as discharge, particle size, particle density, and flow viscosity (that is, water temperature) change. The testing procedure in Section 7 will help develop the parameters necessary to input into a function that describes the performance of a device under a wide range of application conditions. Specifically, this test standard produces a characteristic

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.