



Designation: D 6449 – 99

Standard Test Method for Flow of Fine Aggregate Concrete for Fabric Formed Concrete (Flow Cone Method)¹

This standard is issued under the fixed designation D 6449; 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 a procedure, used both in the laboratory and in the field, for determining the time of efflux of a specified volume of the fine aggregate concrete through a standardized flow cone and used for fabric formed concrete (FFC); however, the test method may also be used for other fluid concrete.

1.2 It is for use with fine aggregate concrete containing fine aggregate as define in Specification C 33.

1.3 This test method is intended for use with fine aggregate concrete having an efflux time 9 to 15 s.

1.4 The values stated in SI units are to be regarded as the standard.

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

2. Referenced Documents

2.1 *ASTM Standards:*

C 33 Specification for Concrete Aggregates²

C 39 Test Method for Compressive Strength of Cylindrical Concrete Specimens²

C 94 Specification for Ready-Mixed Concrete²

C 109/C 109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)³

C 1064 Test Method for Temperature of Freshly Mixed Portland Concrete Cement³

3. Summary of Test Method

3.1 The time of efflux of a specified volume of fine aggregate concrete from a standardized flow cone is measured.

¹ This test method is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.25 on Erosion and Sediment Control Technology.

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.01.

4. Significance and Use

4.1 This test method is applicable to the determination of the fluidity of various fluid fine aggregate concrete mixtures.

5. Interferences

5.1 The presence of solid particles retained on the 9.53 mm ($\frac{3}{8}$ in.) sieve or lumps of unmixed material in the fine aggregate may cause the fine aggregate concrete to flow unevenly through the discharge tube of the flow cone or stop the flow completely. Uneven flow will result in slower transit of the fine aggregate concrete, thereby indicating a false consistency.

6. Apparatus

6.1 *Flow Cone*, the dimensions as shown in Fig. 1. The body and discharge tube can be stainless steel, cast aluminum, or other essentially noncorroding metal.

6.2 *Receiving Container*, capacity 2000 mL (2.114 qt), minimum.

6.3 *Ring Stand* or other devise, capable of supporting the flow cone in a vertical, steady position over the received container.

6.4 *Level*, carpenter's or similar.

6.5 *Stop Watch*, least reading of not more than 0.2 s.

6.6 *Thermometer*, having a range from $[-18$ to 49°C (0 to 120°F)] and conforming to the requirements for ASTM thermometer No. 36 degrees C. Other thermometers of the required accuracy, including the metal immersion type, are acceptable.

7. Test Sample

7.1 The fine aggregate concrete test sample shall be in excess of 1725 mL (1.823 qt) and shall be representative of the fine aggregate concrete in the mixer.

7.2 When sampling and testing is being done for the purpose of proportioning or comparing mixes or for qualifying materials, the temperature of the fine aggregate concrete shall be in accordance with Specification C 94, unless otherwise specified.