
Standard Practice for Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders

AASHTO Designation: R 81-17 (2021)¹

Technically Revised: 2017

Reviewed but Not Updated: 2021

Technical Subcommittee: 3c, Hardened Concrete



**American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, DC 20004**

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1. SCOPE

- 1.1. This method covers procedures for determining the static segregation resistance (stability) of self-consolidating concrete (SCC) using hardened test specimens.
 - 1.2. The concrete used to make the molded specimens shall be sampled after all on-site adjustments have been made to the mixture proportions, including the addition of mix water and admixtures.
 - 1.3. The text of this standard references notes and footnotes that provide explanatory information. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements for this standard.
 - 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.*
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2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
 - [M 205M/M 205](#), Molds for Forming Concrete Test Cylinders Vertically
 - [R 60](#), Sampling Freshly Mixed Concrete
 - [T 22M/T 22](#), Compressive Strength of Cylindrical Concrete Specimens
 - [T 24M/T 24](#), Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
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3. SIGNIFICANCE AND USE

- 3.1. This method provides a visual assessment of static segregation resistance of SCC using a hardened visual stability index (HVSI) to evaluate molded or cored hardened concrete cylinders cut lengthwise in two.
- 3.2. *If the specimens are made and cured as specified herein, the resulting static segregation test data are able to be used for the following purposes:*

- 3.2.1. Acceptance testing for specified static segregation limits;
- 3.2.2. Checking the adequacy of mixture proportions to resist static segregation; and
- 3.2.3. Quality control.

4. APPARATUS

- 4.1. *Molds, Cylinder*—150-by-300-mm (6-by-12-in.) cylinder molds for casting concrete test specimens shall conform to the requirements of [M 205M/M 205](#).
- 4.2. *Small Tools*—Handheld wood or metal float or trowel.
- 4.3. *Saw*—The saw shall have a diamond or silicon-carbide cutting edge and shall be capable of cutting specimens without excessive heating or shock.
- 4.4. *Core Drill*—The core drill shall conform to the requirements of [T 24M/T 24](#).
- 4.5. A suitable container for filling specimen molds with SCC.
Note 1—Experience has shown pails and plastic cylinder molds to be suitable containers.

5. SAMPLING CONCRETE

- 5.1. Samples of freshly mixed SCC used to fabricate test specimens under this standard shall be obtained in accordance with [R 60](#).
- 5.2. *Cored test specimens taken from hardened self-consolidating concrete under this standard shall be obtained in accordance with [T 24M/T 24](#), except for the following:*
 - 5.2.1. Cored test specimens may be taken so that the axis is perpendicular or parallel to the concrete as it was originally placed, and
 - 5.2.2. Cored test specimens shall have a minimum diameter of 50 mm (2 in.) and sufficient length to assess extent of static segregation resistance.
- 5.3. Record the identification of the test specimens with respect to the location of the concrete represented and the time of casting.

6. MOLDING AND CURING SPECIMENS OF FRESHLY MIXED SCC

- 6.1. *Making Specimens:*
 - 6.1.1. A minimum of two fresh test specimens shall be molded as near as practicable to the place where they are to be stored. If it is not practicable to mold the specimens where they will be stored, move them to the place of storage immediately after strike off. Place molds on a rigid surface free from vibration and other disturbances. The supporting surface shall be level to within 20 mm/m (0.25 in./ft).
 - 6.1.2. Specimen molds shall be filled in one lift, poured using a suitable container without vibration, rodding, or tapping.
 - 6.1.3. Strike off the surface of the concrete level with the top of the mold using a float or trowel.