HM-597 Static Segregation Column

INTRODUCTION

This test determines the static segregation of Self-Consolidating Concrete (SCC) in laboratory and field environments. A freshly mixed SCC sample is placed in the mold without tamping or vibration. After the prescribed time, the top and bottom portions of the specimen are recovered and washed on a 4.75mm (No. 4) sieve.

NOTE: This test is not applicable to self-consolidating concrete containing lightweight aggregate.

NOTE: The HM-597 is a variation of the apparatus described in the current C1610-19; Standard Test Method for Static Segregation of Self-Consolidating Concrete Using Column Technique. Its improved design allows a single operator to more easily and efficiently perform the test.

ASSEMBLY

Assemble the HM-597 Static Segregation Column as shown in Figure 1.

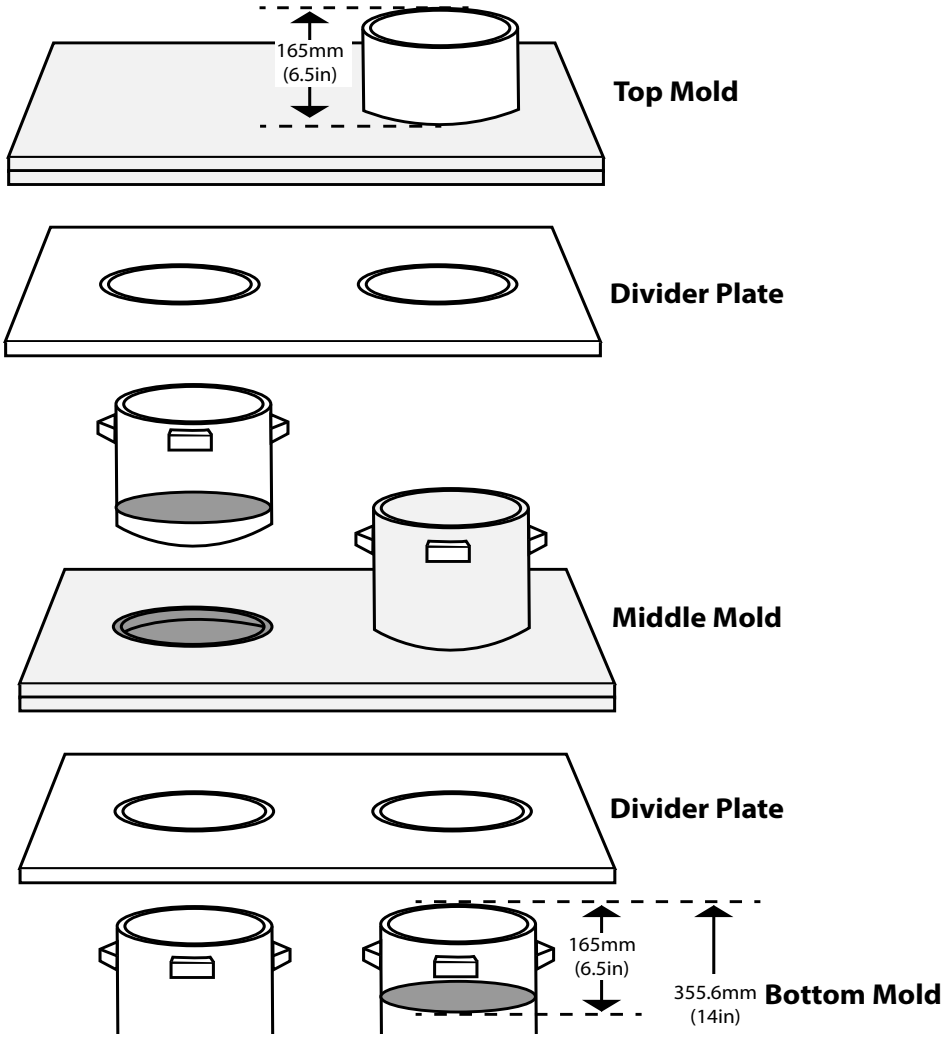

Figure 1

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PHONE: 800-444-1508
740-548-7298
P.O. Box 200, Lewis Center, Ohio 43035-0200
E-mail: customerservice@gilsonco.com **Product Web Page:** www.globalgilson.com
FAX: 800-255-5314
740-548-5314

PROCEDURE

IMPORTANT: Perform this test on a flat, level surface. Do not subject the column mold to vibration or disturbance.

1. Mix the sample obtained in accordance with ASTM C192/C192M until homogeneous.

2. Dampen the interior of the 3-level column and remove any standing water from the base.

3. Fill the column with SCC in accordance with ASTM C1758/C1758M. Completely fill the mold within 2 minutes.

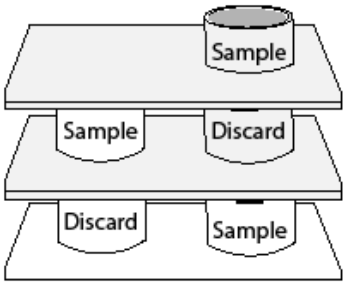

Figure 2

4. Strike off the top surface with a strike-off bar.

5. Allow the SCC to stand undisturbed for 15 ±1 minutes.

NOTE: Complete Steps 6 to 13 within 20 minutes.

6. In a continuous motion, slide the top mold until it is aligned with the second column.

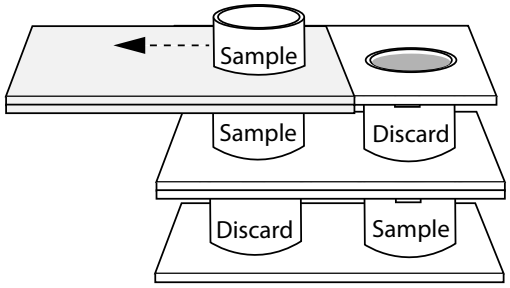

Figure 3

7. After the SCC from the top mold has transferred into the second column sample section, slide the top mold off of the assembly and remove the divider plate. Place the collected SCC into a sample receptacle.

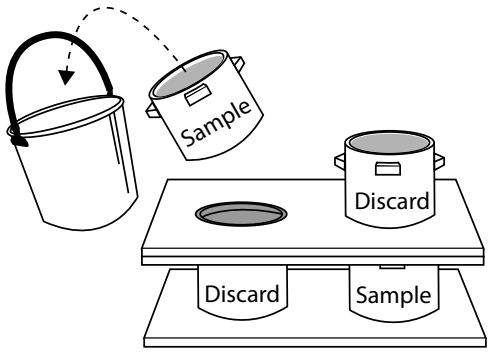

Figure 4

8. In a continuous motion, slide the middle mold until it is aligned with the second column.

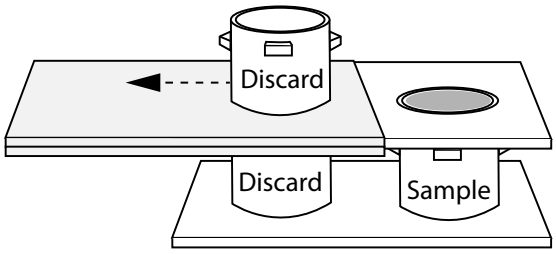

Figure 5

9. After the SCC has transferred to the into the second column discard section, slide the middle mold off of the assembly and remove the divider plate. Place the collected SCC from the bottom mold into a sample receptacle.

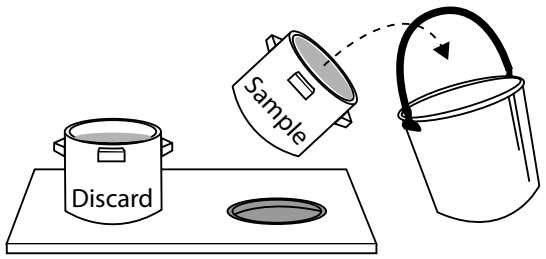

Figure 6

10. Wash the SCC sample collected from the top mold section over a 4.75mm (No. 4) sieve and wash until only coarse aggregate remains. Place washed aggregate in a clean receptacle.

11. Wash the SCC sample collected from the bottom mold section over a 4.75mm (No. 4) sieve until only coarse aggregate remains. Place washed aggregate in a clean receptacle.

12. Bring the aggregate samples to a surface-dry condition by rolling in an absorbent cloth.

13. Determine the mass of coarse aggregate from the top and bottom sections of the column to the nearest 50g [0.1lb].