

SAE Inc. Standard No. 110

Water Absorption of ConduCrete

ABSTRACT

This test method is used to evaluate the amount of water absorbed by SAE's cementitious products such as ConduCrete. Samples are submerged in 25 °C water until they are fully saturated, at which point percent water uptake in saturated ConduCrete is calculated.

1. EQUIPMENT REQUIRED

- 1.1 Concrete mixing equipment
- 1.2 Tamping rod
- 1.3 Programmable water bath
- 1.4 Electronic balance accurate to 0.01 g

2. SAMPLE PREPARATION

- 2.1 Prepare the ConduCrete samples for testing by mixing the ConduCrete powder with the required volume of water for the application, mixing until the particles are thoroughly dispersed.
- 2.2 Pour / scoop the ConduCrete slurry into a 4"x8" cylinder until half full.
- 2.3 Using the tamping rod, rod the material 25 times then tap the exterior of the cylinder 15 times.
- 2.4 Pour / scoop the ConduCrete slurry into the cylinder until full.
- 2.5 Rod the material an additional 25 times, ensuring that the tamping rod reaches into the first layer of material at least once.
- 2.6 Tap the exterior of the cylinder an additional 15 times and then strike off the excess material so that the top of the sample is level.
- 2.7 Close the lid and label the sample accordingly.
- 2.8 Allow the ConduCrete sample to cure for 28 days then remove from the cylinder.

3. TEST SETUP

- 3.1 Weigh each sample using an electronic balance accurate to +/- 1 g.
- 3.2 Record any notes about the physical appearance of the sample.
- 3.3 Fill a programmable water bath with tap water.
- 3.4 Turn on the bath and set to 25 °C.
- 3.5 Once the water bath has reached temperature, fully immerse the sample in the bath and record the time.

4. PROCEDURE

- 4.1 After 24 hours remove the sample from the water batch, wipe the surface dry and then weigh it.
- 4.2 After weighing the sample place it back in the water bath for an additional 24 hours, then remove it from the bath, dry the surface and weigh it again.
- 4.3 Continue to record the weight of the sample(s) until the weight of the sample changes by less than 0.5% in one week.
- 4.4 Repeat this test procedure in triplicate for each ConduCrete sample.

5. CALCULATIONS

- 5.1 The quantity of water absorbed can be expressed as a percentage of the dry weight of the sample:

$$\% \text{ Water Uptake} = \frac{\text{Saturated Weight (g)} - \text{Dry Weight (g)}}{\text{Dry Weight (g)}} \times 100$$

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