
Standard Method of Test for

Air Content of Freshly Mixed Concrete by the Chace Indicator

AASHTO Designation: T 199-00 (2004)



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1. SCOPE

- 1.1. This method of test covers the determination of the air content of freshly mixed concrete by displacing the air with alcohol and observing the change in level of the liquid in a tube. The apparatus is light and small, and the test procedure requires only a few minutes.
- 1.2. This method has been found satisfactory for determining the approximate air content of freshly mixed concrete. It should not however be considered suitable for replacing T 121M/T 121 (gravimetric method), T 152 (pressure method), or T 196M/T 196 (volumetric method). In no case should the value obtained through the use of this method be accepted as determining the compliance of the air content of concrete with the requirements of specifications. The method is most useful for determining whether the concrete has a low, medium, or high air content, and whether the air content is reasonably constant from batch to batch of concrete.

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- T 121M/T 121, Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
 - T 152, Air Content of Freshly Mixed Concrete by the Pressure Method
 - T 196M/T 196, Air Content of Freshly Mixed Concrete by the Volumetric Method

3. APPARATUS

- 3.1. *Indicator*—The indicator as shown in Figure 1 consists of three pieces: a glass tube about 75 mm (3 in.) long and 25 mm (1 in.) in diameter with a stem 75 mm (3 in.) long and 6.4 mm (0.25 in.) in diameter at one end resembling a filter tube for Gooch crucibles, a rubber stopper to fit the larger end of the glass tube, and a metal cup mounted on the smaller end of the stopper. The stem of the glass tube is scribed with 11 lines, each pair indicating an approximate volume of 0.08 mL. A reference line is also scribed on the large portion of the tube. The exact stem factor should be determined in accordance with Section 2.2. The brass cup is 19 mm (0.75 in.) in inside diameter, 13 mm (0.5 in.) in depth, and contains a volume of 3.6 mL. When the stopper and cup are inserted into the glass tube, the volume of the latter and stem is about 27 mL.
- 3.2. *Indicator Stem Factor*—Experience has shown that it is difficult to fabricate indicators to a close tolerance at a reasonable price. Therefore, indicators should be calibrated and inscribed with a calibration factor that represents the percent of the volume of the bowl contained in one graduation on the stem. An indicator can be calibrated in a few minutes by filling the bowl and stem with a liquid such as alcohol and noting the quantity of liquid contained in the bowl and in 10 graduations on the stem.