

2. Determine the accuracy of the graduations on the neck of the top section of the air meter by filling the assembled measuring base and top section with water to the level of the mark for highest air content graduation. Add water, at 21.1° C, in increments of 1.0 percent of the volume of the base to check accuracy throughout the graduated range of air content. The error at any point shall not exceed 0.1% of air.

D. SAMPLE

Obtain the sample of freshly mixed concrete in accordance with applicable provisions of California Test 539, "Method of Sampling Fresh Concrete."

E. PROCEDURE

1. Rodding and Tapping:

Using the scoop, fill the base with freshly mixed concrete in three layers of equal depth. Rod each layer 25 times with the tamping rod, distributing the strokes evenly over the surface of the layer. Tap the sides of the base 10 to 15 times with the hand or a rubber mallet having a mass 0.57 to 0.23 Kg after rodding each layer to displace entrapped air along the sides of the base. In rodding the first layer, penetrate nearly full depth into the layer, but avoid striking the bottom of the base. In rodding the second and third layers, penetrate slightly into the underlying layer with each stroke.

2. Striking Off:

After placement of the third layer of concrete in accordance with E-1, strike off the excess concrete with the strike-off bar until the surface is flush with the top of the base. Wipe the flange of the base unit clean.

3. Adding Water:

Clamp the top section into position on the base. Insert the funnel and add water until it appears in the neck. Remove the funnel and adjust the water level, using the syringe, until the bottom of the meniscus is level with the zero mark. Attach and hand tighten the screw cap.

4. Inverting and Agitating:

After completing the inverting and agitating procedure, tilt the meter approximately 45 degrees and vigorously roll and rock the unit for approximately 1 min. Keeping the neck elevated at all times. Set the unit upright and allow it to stand while the air rises to the top until the liquid level stabilizes. The liquid level is considered stable when it does not change more than 0.1% within a one min. period. Set the apparatus upright, jar it lightly, and allow it to stand until all of the air rises to the top (about 5 minutes when testing lightweight concrete). Repeat the operation until two consecutive readings do not change more than 0.25% air.

5. Dispelling Air Bubbles:

When all of the air has been removed from the concrete and allowed to rise to the top of the water in the neck remove the screw top. Add, in 1 measuring cup increments using the syringe, sufficient isopropyl alcohol to dispel the foamy mass on the surface of the water. One measuring cup is equivalent to 1% air, and is usually all that is required.

6. Reading:

Read the level of the liquid in the neck, reading the bottom of the meniscus, and estimating to the nearest 0.25% air. Calculate the air content of the concrete in the measuring base in percent, by adding to the above reading the amount of alcohol used in accordance with E-5.

F. PRECAUTIONS

1. Avoid striking the top edge of the base when rodding the fresh concrete.
2. Wipe the flange of the base clean to ensure an airtight seal when the meter is assembled.
3. In testing lightweight concrete, every effort must be made to prevent the lightweight particles from filling the neck of the top section of the meter after the concrete is agitated. Take care to not break the glass in the neck section when dislodging any of these particles that may enter the neck.
4. Disassemble the apparatus and examine the contents to be sure that there are no portions of undisturbed, tightly packed concrete in the

base. If portions of undisturbed concrete are found the test is invalid.

G. SAFETY AND HEALTH

Prior to handling, testing or disposing of any waste materials, Caltrans testers are required to read: Part A (Section 5.0), Part B (Sections: 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans' Laboratory Safety Manual.

Users of this method do so at their own risk.

REFERENCES:
ASTM Designation: C-173
California Test 539

End of Text (3 Pages) on California Test 543