
ATTI - PERFORMANCE CHECKLIST

AASHTO T 84-22 – Specific Gravity and Absorption of Fine Aggregate

Sect. **Sample Preparation**

- 7.1 1. Obtain approximately **1 kg** of fine aggregate using the procedures in R76.
- 7.1.1 2. Dry to a constant mass at a temperature of **110 ±1.7°C (230 ± 9 F)**.
- 7.1.1 3. Allow it to cool to a comfortable handling temperature, cover with water, either by immersion or by the addition of at least 6% moisture and permit to stand for **15 to 19 hours**.
- 7.2 4. Decant excess water with care to avoid loss of fines.
- 7.2 5. Spread sample on a flat nonabsorbent surface exposed to a gently moving current of warm air, and stir frequently to achieve homogenous drying. As the material begins to dry it may be necessary to work it with the hands in a rubbing motion to break up any conglomerations, lumps, or balls of material that develop.
- 7.2 6. It is intended that the first trial of the cone test will be made with some surface water in the specimen. Continue drying with constant stirring, working the material with a hand-rubbing motion, and test at frequent intervals until the test indicates that the sample has reached a surface-dry condition.
- 7.2 7. If the first trial of the surface moisture test indicates that moisture is not present on the surface, thoroughly mix a few milliliters of water with the fine aggregate and permit the specimen to stand covered for **30** minutes. Then resume the process of drying and testing at frequent intervals.
- 7.2.1 8. **Cone Test for Surface Moisture** - Hold the mold firmly on a nonabsorbent surface with the large diameter down. Place a portion of the partially dried fine aggregate loosely in the mold, filling it until overflowing occurs and heaping additional material above the top of the mold.
- 7.2.1 9. Lightly tamp the fine aggregate into the mold with **25** light drops of the tamper. Each drop should start about **5 mm (0.2 in)** above the top surface of the fine aggregate. Permit the tamper fall freely on each drop. Adjust the starting height to the new surface elevation after each drop and distribute the drops over the surface.

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- 7.2.1 10. Remove loose material from the base and lift mold vertically. When the fine aggregate slumps slightly, it indicates that it has reached SSD condition.

Sect. **Procedure**

- 8.1 11. Record all mass determinations to 0.1 grams.
- 8.2 12. Partially fill the pycnometer with water. Immediately introduce 500 ± 10 g of SSD fine aggregate, and fill with additional water to approximately 90 percent of capacity.
- 8.2 13. Manually roll, invert, and agitate or use a combination of these actions to eliminate all air bubbles in the pycnometer.
- 8.2 14. Adjust the temperature to $23.0 \pm 1.7^\circ\text{C}$ ($73.4 \pm 3^\circ\text{F}$) and bring the water level in the pycnometer to its calibrated capacity.
- 8.2 15. Determine total mass (pycnometer, specimen and water).
- 8.3 16. Remove the fine aggregate from the pycnometer, dry to constant mass at a temperature $110 \pm 5^\circ\text{C}$ ($230 \pm 9^\circ\text{F}$).
- 8.3 17. Cool in air at room temperature for 1.0 ± 0.5 hours and determine the mass.
- Note 7* 18. In lieu of drying and determining the mass of the sample that has been removed from the pycnometer, a second portion of the saturated surface dry sample may be used to determine the oven dry-mass. This sample must be obtained at the same time and be within **0.2** grams of the mass of the sample that was introduced into the pycnometer.
- 8.4 19. Determine the mass of the pycnometer filled to its calibration capacity with water at $23.0 \pm 1.7^\circ\text{C}$ ($73.4 \pm 3^\circ$).