



Florida Method of Test for Sampling Aggregates

Designation: FM 1-T 002

FM 1-T 002 is identical to AASHTO T 2 except for the following provisions:

1. Delete last sentence of Section 4.2 and replace with:

Samples for tests used in the Department's quality assurance program are collected by the designated parties in the producer's Quality Control Program, the Department, or the Department's designee.

2. Delete title for 5.3.4 and replace with:

Sampling from Roadway (Bases, Subbases, Subgrade and Embankment Materials)

3. Delete section 5.3.3.1 except for the title "Sampling from Stockpiles with Power Equipment and replace with:

The power equipment (generally a rubber wheeled front-end loader) should be used to remove material from the bottom of the stockpile, across the entire cross-sectional face of the stockpile. Production should not be occurring on the face during sampling. The loader should operate in a direction perpendicular to the conveyor or to the direction in which the stockpile was created by dumping or unloading. The face should be opened as many times as required to make material cascade from the top to bottom of the stock pile. Material removed by opening the face should be placed away from the area to be sampled. With the bucket about 18 inches above the base of the stockpile, one loader bucket of material should be collected from the middle of the face. The loader should be directed straight into the face and the bucket scooped upwards parallel to the slope. Care should be taken to keep the loader wheels off the pile. After backing from the pile, the bucket should be gently lowered to about 3 to 4 ft above the surface and the material allowed to slowly roll out with a downward tilt of the bucket. The loader should pull forward to allow the material to cascade out on to the crest of the mini stockpile being formed, breaking to either side being formed. The loader should then be driven forward past the edge of the mini stockpile and the blade rotated as far down as possible. The loader is then reversed so that the blade edge can be back dragged across the upper 1/2 to 1/3 of the mini stockpile, leaving it at least 18 inches high, to expose the center of mass to be sampled. Avoid sampling within one foot of the edge of the mini stockpile. Samples are taken by pushing a square tipped shovel inserted vertically to its full depth in at least 3 points in the flattened stockpile. The sampling surface should correspond to the original shape of the mini



stockpile. Samples should never be collected from the "stretched" area, that is, the material removed from the crest by back-blading. Ensure that the sample is representative of mini stockpile and face sampled. Repeat for two more mini stockpiles. Compose material from the three mini stockpiles to form sample.

4. Add after section 5.3.3.2 paragraph (1):

The number of increments should be representative of the volume in each section of the stockpile being sampled. For convenience the stockpile is divided into three sections of equal height, referred to as the bottom, middle and top third of the stockpile. For cone-shaped stockpiles, about 70% of the volume of the stockpile is contained in the bottom third of the stockpile. Only 6% of the volume is contained in the upper third. For tent-shaped stockpiles, produced with a radial or traveling stacker, about 56% of the material is in the lower third and 11 % in the upper third of a tent-shaped stockpile. For tent-shaped stockpiles, three samples taken from the bottom third, two from the middle third, and one from the upper third, approximately represent the volume in each section of the stockpile being sampled. This method is referred to as the 3-2-1 technique.

5. Replace paragraph (1) of section 5.3.3.3 and replace with:

(1) Sampling tubes approximately 30 mm [1.25 in.] minimum diameter by 2 m [6 ft.] in length shall be inserted into a stable and safe production-face of the stockpile.

6. Delete paragraph (3) of section 5.3.3.3 and replace with:

(3) Generally, fine aggregate is produced using tent-shaped stockpiles, produced with a radial or traveling stacker. Samples should be taken by the 3-2-1 technique from three locations in the lower third, two in the middle, and one in the upper third of the stockpile. The sampling personnel should push the tube horizontally into the face of the stockpile until the material plugs the tube. Jamming the tube its entire length with one thrust should be avoided. After the tube plugs, it should be removed and the surface wiped clean. The tube should be emptied into a portable sample container (a large plastic bag is appropriate when climbing) and the tube slowly reinserted into the same hole location until resistance is encountered. The tube should then be pushed horizontally into the face of the stockpile until the material plugs again. The procedure should be repeated as many times as necessary until the entire length of the tube has been inserted into the stockpile.