Florida Method of Test for Sampling of Post-Tensioned Tendon Grout

Designation: FM 5-618

1. SCOPE

1.1. Method covers the procedures for obtaining a proper sample and sample preparation of Post Tensioned (PT) tendon grout to determine sulfate content.

1.2. Use FM 5-553 to obtain sulfate level from sample.

2. SAMPLES

2.1. Grout Sampling: Every effort should be made to obtain a grout sample that is representative of the bulk material. Obtain as much representative material as possible, not to exceed 100g. Use clean tools and avoid contamination when gathering samples. The collected sample should be placed in plastic or plastic lined bags.

2.1.1. Bagged Material: Sample from high port vent from the inclined tube test and allow to cure for 14 days.

2.1.2. In-Service Tendon: Sample from a previously surveyed area of the PT tendon or obtain grout from a high point on the duct system. If new construction, allow 14 days curing time before testing.

2.2. Transporting Samples: Maintain samples in a cool dark area after sampling and during transport to test facility.

2.3. Storing Samples: Store samples at room temperature prior to analysis.

3. SAMPLE PREPARATION

3.1. Preparation of Grout:

3.1.1. If necessary crush the sample to approximately ¾” size using jaw crusher or other suitable device. Spread the sample in a thin layer on a clean tray and dry under ambient conditions until a constant mass is achieved, or dry in an oven at no higher than 140°F (60°C) for 24 hr or until a constant mass
is achieved. Pulverize sample with mechanical pulverizer or another suitable device until it passes through a No.100 Mesh (150µm) sieve. Split the sample per AASHTO R76 to obtain 4 ± 1g.

3.1.2. Weigh 1 ± 0.1g of the dried powder into a clean 100mL beaker. Add 10mL of deionized water to obtain 1:10 leaching volume; stir and cover with a watch glass. Repeat for multiple samples.

3.1.3. Place the sample on a 135 ± 5°F (57 ± 3°C) hot plate. Remove the sample from the hot plate after 18-24 hr. digestion time.

3.1.4. Set up a 125mL filter flask for each sample solution. Place a funnel on top of each flask. Fold and place a No. 42 size filter paper in each funnel and connect the filter flask to the vacuum.

3.1.5. Using deionized water for all rinsing. Rinse any residue left on the stirring rod and on the underside of the watch glass into the funnel. Decant as much solution as possible through the filter.

3.1.6. Transfer the obtained solutions to 100mL vials, and add deionized water to reach 100mL for each solution.

4. TESTING OF SAMPLES

4.1. Use FM 5-553 to obtain sulfate level from sample.

4.2. Comply with sections 2, 3 and 6 of FM 5-553.