Performance Examination - Soils

Standard Practice for Dry Preparation of Disturbed Soil and Soil–Aggregate Samples for Test (AASHTO R 58-19)

Candidate Name: _____ **NICET ID:** _____

Apparatus	Trial 1	Trial 2
Sieves *Sieves*—A series of sieves of the following sizes: 4.75 mm (No. 4), 2.00 mm (No. 10), 0.425 mm (No. 40), and others as required for preparing the sample for a specific test. The sieves shall conform to ASTM		
Pulverizing Apparatus (one of the following): Mortar and rubber-covered pestle or mechanical device consisting of a power-driven, rubber-covered muller suitable for breaking up the aggregations of soil particles without reducing the size of the individual grains.		
Sample splitter Sample splitter, riffle sampler, or quartering or canvas cloth		
Balance Conforms to the requirements of M231; The balance shall conform to the requirements of M 231, for the class of general purpose balance required for the principal		
Drying Apparatus Any suitable device capable of drying samples at a temperature not exceeding 60 °C (140 °F)		

Procedures	Trial 1	Trial 2
1. Maximum particle size shall not be less than the amount shown in the following table.		

Diameter of Largest Particle, mm (in.)	Approximate Minimum Mass of Portion, kg
9.5 (⅜)	0.5
25 (1)	2.0
50 (2)	4.0
75 (3)	5.0

Initial Preparation of Test Samples		
1. Dry sample thoroughly in air or drying apparatus not exceeding 60 °C (140 °F)		
2. Select sample by splitting or quartering and then pulverize (without reducing natural grain size). Select a portion of the dried sample for particle size analysis and record weight and mass as the mass of total sample uncorrected for hygroscopic moisture		
For Alternate Methods Using 2.00-mm (No. 10) Sieve		
1. Separate the dried sample into two fractions using a 2.00-mm sieve		
2. Grind the fraction retained on the sieve with the pulverizing apparatus until the aggregations of soil particles are broken into separate grains		
3. Separate the ground soil into two fractions using the 2.00-mm sieve.		
For Alternate Methods Using 4.75-mm and 2.00-mm (Nos. 4 and 10) Sieves		
1. Separate the dried sample into two fractions using a 4.75-mm sieve		

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Procedures (continued)	Trial 1	Trial 2
2. Grind the fraction retained on this sieve with the pulverizing apparatus until the aggregation of soil particles is broken into separate grains, and then separate these grains on the 4.75-mm sieve		
3. Thoroughly mix the fractions passing the 4.75-mmsieve		
4. Obtain a representative portion, by the use of the sampler or by splitting and quartering, adequate for the desired tests		
5. Separate this portion on the 2.00-mm sieve and process as described in *Alternate Methods Using 2.00-mm (No. 10) Sieve*		
6. Record the mass of the material from this split-off fraction that is retained on the 2.00-mm sieve for later use		
Test Sample for Particle Size Analysis and Specific Gravity		
1. For use in sieve analysis of the coarse material: set aside fraction retained on the 2.00-mm (No. 10) sieve from the *Alternate Methods Using 2.00-mm (No. 10) Sieve* or that retained on the 4.75-mm (No. 4) sieve from the *Alternate Methods Using 4.75-mm Sieve* after the second sieving		
2. Thoroughly mix the fractions passing the 2.00-mm (No. 10) sieve in both sieving operations and, by the use of the sampler or by splitting or quartering, obtain representative portions having the following approximate masses: A) For T 88, 110 g for sandy soil and 60 g for silty or clayey soils B) For T 100, 25 g when volumetric flask is used and 10 g when stoppered bottle is used		
Test Sample for Physical Tests Liquid and Plastic Limits (T 89 & T 90)		
1. Separate remaining portion of material passing the 2.00-mm (No. 10) sieve into two parts using the 425-µm (No.40) sieve		
2. Grind the fraction retained on the 425-µm (No. 40) sieve with pulverizing apparatus in such a manner as to break up the aggregations without fracturing the individual grains		
3. Separate the ground soil into two fractions by means of 425-µm (No. 40) sieve, and regrind the material retained on the sieve		
4. When repeated pulverizing produces only a small quantity of soil passing the 425-µm (No.40) sieve, material retained on 425-µm sieve (No.40) discarded		
5. Thoroughly mix the fractions passing the 425-µm (No. 40) sieve obtained from the grinding and sieving operations above and set aside for use in performing the physical tests.		

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Candidate Name: _____ **NICET ID:** _____

First Attempt: Pass: _____ Fail: _____ **Second Attempt:** Pass: _____ Fail: _____

Exam Administration: Remote _____ In-Person _____

Comments:

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Examiner Name:_____ **Examiner Signature**: _____**Date:** _____