

Method of Soil Sample Preparation

1. Scope:

This procedure is used for preparing disturbed soil samples for testing.

2. Apparatus:

- 2.1 Sieves. 3/8", #4, #10, and #40 conforming to ASTM E11.
- 2.2 Soil pulverizer. A jaw crusher, wooden hammer, mechanical rubber covered pestle or mechanical pulverizer approved by the Chief Materials and Surfacing Engineer.
- 2.3 Sample splitter conforming to SD 213.
- 2.4 Scale or balance having the capacity to weigh any sample which may be tested utilizing this procedure and readable to 0.01 lb and also one that is readable to the nearest 0.01 gram.
- 2.5 Miscellaneous: Pans, scoops, brushes, etc. for handling materials.
- 2.6 Drying oven capable of maintaining a temperature not exceeding 140°F.
- 2.7 Measure. A watertight, metal cylindrical measure with the top and bottom true and even, calibrated in accordance with SD 205.
- 2.8 Funnel with a large mouth that will allow passage of the material.
- 2.9 A steel straightedge at least 10" in length.

3. Procedure:

- 3.1 Obtain a sample in accordance with SD 201.
- 3.2 Weigh the material to the nearest 0.1 gram and dry it to a constant weight as defined in SD 108, in an oven at a temperature not exceeding 140°F.
- 3.3 Break the soil into particle sizes approximately 3/8" using the jaw crusher, wooden hammer or rubber covered pestle.

NOTE: If the jaw crusher is used, the rock in the sample retained on the 3/8" sieve must be removed prior to crushing.

- 3.4 After breaking down the sample to approximately 3/8" size, place it in the mechanical pulverizer until the soil will pass a #10 sieve. A rubber covered pestle may be used.

- 3.5 Obtain the loose weight of the material in accordance with SD 205, paragraph 3.5 and 4.1, except, the material is introduced into the measure through the funnel held at a height of 6".
- 3.6 Obtain a sample of material to perform the individual tests. A sufficient amount of material retained on the #10 sieve is required to obtain a representative gradation, and depending on the maximum particle size, shall not be less than the amount shown in the following table:

Diameter of Largest Particle	Minimum Mass of Portion
3/8"	500 grams
1"	2000 grams
2"	4000 grams
3"	5000 grams

When only a small percentage of the material will be retained on the #10 sieve, adherence to the minimum weight requirements in the above table may not be necessary.

- 3.7 Using the 3/8" #4, and #10 sieves, determine the sieve analysis in accordance with SD 202.
- 3.8 Using the material passing the #10 sieve weigh out a 50 g sample for use in SD 102.

NOTE: If the material is shale, the sample for SD 102 is taken from material passing the #40 sieve.

- 3.9 Using material passing the #10 sieve, obtain a sample for determining the plasticity Index in accordance with SD 207, paragraph 3.2 thru 3.3.

4. Report:

None required.

5. References:

- AASHTO T 87
- ASTM E11
- SD 102
- SD 201
- SD 202
- SD 205
- SD 207
- SD 213