

Soil Textural Analysis – The Jar Test

Materials:

- straight edged, clear jar
- permanent marker
- ruler
- watch or stopwatch
- 1 tablespoon of powdered dishwashing detergent
- mesh sieve or old colander

Procedure:

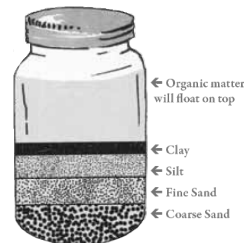
1. Using a mesh sieve or old colander, sift the soil to remove any debris including rocks and large organic matter (i.e. leaves, sticks, roots, etc.).
2. Fill the jar $\frac{1}{4}$ to a $\frac{1}{3}$ full of the soil to be tested.
3. Fill the remainder of the jar with clean water leaving some space at the top.
4. Add 1 tablespoon of powdered dishwashing detergent
5. Close the jar and shake vigorously for five minutes to thoroughly mix the sample. Place the jar in a level spot and let it sit for at least 24 hours.
6. At the end of 24 hours, mark the top of the soil level on the outside of the jar. Measure the depth of the settled soil. This represents the total depth of the soil.
7. Shake jar thoroughly again. Place the jar in a level spot and let the jar sit for one minute. Mark the top of the settled soil.
8. Measure the depth of the settled soil. This represents the sand layer.
9. Leave the jar in a level spot for another 2 hours. Mark the top of the next layer of settle soil.
10. Measure the distance between the mark showing the level of sand and your new mark. This represents the silt layer.
11. The remaining unsettled particles in suspension represent the clay fraction. Measure the distance between the top mark (total depth of soil) and the mark showing the level of silt. This distance represents the clay level.
12. Calculate the percent sand, silt and clay of your soil sample using the equations below. The more thoroughly your sample is mixed, the more accurate your results will be.
13. Use the ‘Soil Textural Triangle’ to determine the texture of your soil.

TOTAL HEIGHT OF LAYERS: _____ inches / cm

Height of sand layer: _____ inches / cm

Height of silt layer: _____ inches / cm

Height of clay layer: _____ inches /cm



% SAND = (sand height)/(total height) x 100 = _____ % SAND

% SILT = (silt height)/(total height) x 100 = _____ % SILT

% CLAY = (clay height)/(total height) x 100 = _____ % SILT