

## Miniature Hydrometer Testing in the Field (Jar Testing)

### Purpose:

Soil scientists use a hand-texturing method to determine soil texture in the field. It requires knowledge, practice, and time. Jar testing can give an approximate reading of sand content in a really short time, and it is easy to carry out. More accurate readings should be determined by the hydrometer method in the lab.

### Equipment:

- ❖ Small glass jar with lid (Figure 2)
- ❖ A bottle with fine tip/ Spreadhead water bottle (Figure 1)
- ❖ Borax – It helps to breakup the aggregate soil particles
- ❖ Water – Water bottle should be filled with water



Figure 1: Water bottles



Figure 2: Glass jars: jar on the left represents the ideal amount of sample; jar on the right represents the ideal amount of Borax.

### Procedure:

- 1) Place small amount of crushed soil and tiny amount of Borax into the glass jar. (Figure 2.)
  - a. Amount of Borax should be less than a quarter of the sample in the jar.
  - b. Remember the quantity of sample in the jar.
- 2) Add water into the glass jar and leave a quarter empty space at the top.
- 3) Close lid.
- 4) Shake the glass jar in up and down direction for at least 2 minutes, or until aggregated soil particles break into fine sizes.
- 5) Sit jar on a level surface for 40 seconds.
- 6) Take an approximate reading of sediment without disturbing the solution.

### Result:

Approximated calculation for Sand%: Divided sediment volume by sample volume, and multiple by 100.  
$$\text{Sand\%} = ((\text{Volume of Sediment}) / (\text{Volume of Sample})) \%$$

### Note:

A small ruler is helpful to measure the volume of the sample and the volume of the sediment. It also can be used as a photo scale. Jar testing is useful and practical for testing the soil texture in the field.