

1. Characterize the first of your sand samples as to grain size and sorting; record this and other observations on the data sheet provided, Table 7.1 on page 53. Include a measurement of median grain size, which you will use as an approximation of median pore size.
2. The permeameters have been set up already to ensure that the samples do not contain entrapped air. **Do not allow the samples to become unsaturated**, or you will have to spend an additional 15 minutes putting the sample under vacuum to remove the air (and you will be jeered loudly by the rest of the students who will also get out of lab 15 minutes late).

3. Refer to Figure 7.1, which shows the basic arrangement for a constant-head permeameter. Permeameter designs vary somewhat, so your apparatus may look slightly different, but the operation will be the same.

Measure and record the length of the sand column (Δl).

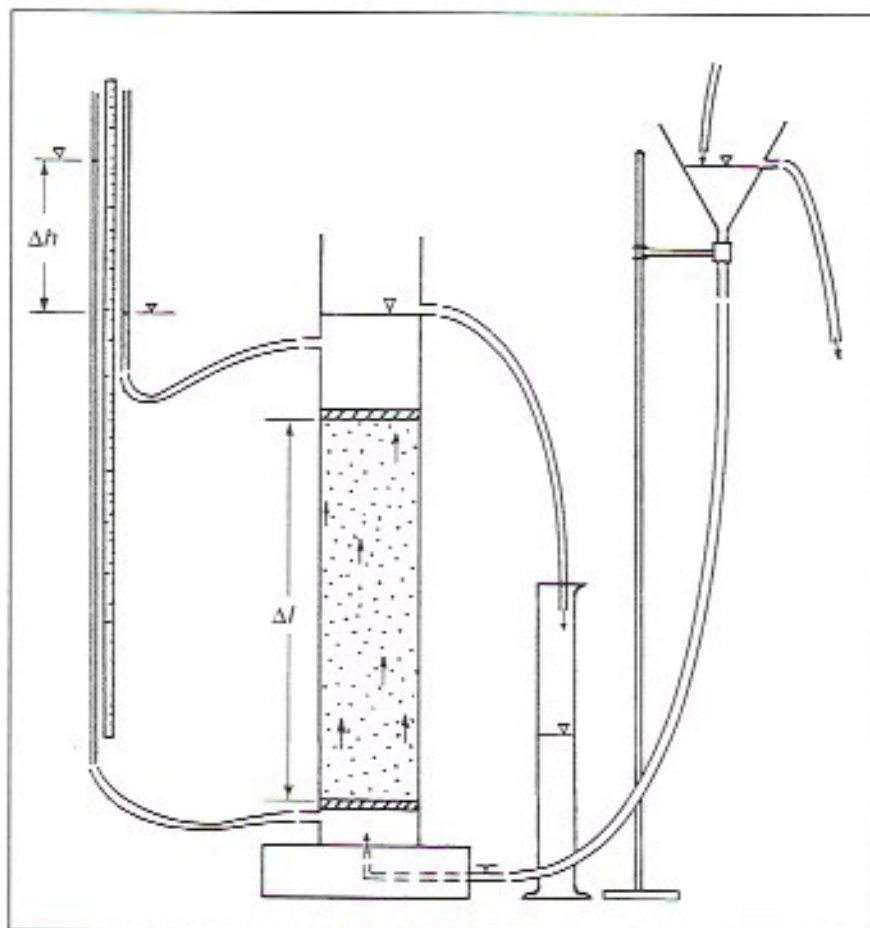


Figure 7.1—Constant-head permeameter.

Record the cross-sectional area of the sample (A), written on the permeameter.

4. Adjust the height of the funnel so that its overflow port is about 2 cm above the outflow port of the permeameter. This will establish a head difference of about 2 cm.
5. Start a flow of water into the funnel.
6. Start the flow of water through the sand.

Adjust the inflow to maintain a constant level in the funnel.

7. When flow has stabilized, collect outflow from the permeameter in a graduated cylinder for 3 to 5 minutes, while timing.

Measure and record the difference in head across the sand column (Δh).

8. Record the volume of water collected (V), the time interval (t), and the temperature (T).

Calculate and record average discharge (Q).