

Wetting Induced Swell/Collapse

Wetting-induced deformations can lead to great damages to structures and therefore is critical that they are identified through laboratory tests.

Soil may experience notable volume change on submergence in water. Depending on soil properties and other environmental factors, e.g., initial water content, initial dry density, vertical confining pressure and porewater chemistry, soils may experience swell or collapse when wetted by groundwater.

The One-dimensional Swell or Collapse Test is designed for both remoulded or in-situ soil samples. The test can plot the wetting-induced swell/collapse strain versus vertical loading pressure curves of soils to determine their magnitude of free swell strain, and swell pressure index. For in-situ samples, the test can tailor the confining pressure that matches the in-situ sample depth and test the in-situ wetting-induced sample deformation. The additional stepped consolidation process is also available in the test to identify the load-induced strains after wetting-induced swell or collapse deformation has occurred.



Variables Determined

- Free Swell Strain
- Swell Pressure
- Swell or Collapse Strain at Different Loads

