Erosion and Dispersion of Sandy Soil with Addition of Fine Materials

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ABSTRACT
For a better understanding of the performance of earth structures, it is essential to define and evaluate the variables that determine the erosion and dispersion of soils. A laboratory study has been carried out to characterize the soil internal erosion due to the water flow and the effect of fine materials percents on the erosion and dispersion of sandy soil.

A double hydrometer test, crumb test, slacking test and pinhole erosion test were conducted to investigate the soil dispersibility characteristics. Sandy soil samples were collected from a region in Mosul city – North of Iraq, and treated with different percents of fine materials of clayey soil, these percents were ranged from (0 - 80 %) of the dry weight of sandy soil.

The results showed that, the addition of fine materials enhanced both the compaction and dispersibility characteristics of sandy soil. As the fine materials increases, the soil resistance to internal erosion increased. So, the pinhole erosion test was the more reliability test to classify the soil according to the dispersibility.

Keywords: Sandy soil, Fine materials, Erosion, Dispersion, Pinhole test, Slacking test.