Effect of Low Plastic Clay Quantity on Behavioral Characteristics of Loose Sand

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Abstract : After the Nigatta earthquake in Japan, in 1960, the liquefaction and its related hazards, moved to the thick of matter. Most of the research have been carried out on clean sands and silty sands so far, in order to study the effect of fine particles, confinement pressures, density and so on. However, because of this delusion that adhesiveness of clay prevents the liquefaction in sand, studies on clayey sands have not been taken seriously. However, several liquefactions happened in clayey sands in recent years, and lead to the necessity of more studies in this field. The studies which were carried out so far focused on high plastic clays. In this paper, the effect of low plasticity clays on the behavioral characteristics of sands is discussed. Thus, some triaxial tests were carried out on clean sands and clayey sands with different percentages of added clay. Specimens were compacted in various densities to study the effect of quantity of clay on various densities, too. Based on the findings, the amount of clay affects the behavior of sand greatly and leads to substantial changes in peak bearing capacity and steady state values.

Keywords : liquefaction, clay, sand, triaxial, monotonic, failure
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