

## **Strength characteristics of sabkha soils**

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**Abstract:** This is a study to assess the strength characteristics of a sabkha soil from eastern Saudi Arabia. A total of 24 undisturbed samples were tested under unconfined compression, direct shear, consolidated-drained and consolidated-undrained triaxial tests. These samples were tested either at their natural moisture content or initially saturated with either distilled water or sabkha brine. Moreover, 14 CBR tests were conducted in the field and laboratory under natural and soaked conditions to evaluate the response of undisturbed sabkha soil to penetration tests. Results of this investigation indicate that sabkha possesses low strength in its natural condition and it is highly susceptible to collapse upon exposure to water. Furthermore, there is a strong correlation between the shear strength and the cemented structure of sabkha soil. Only those triaxially-tested samples which were saturated with distilled water and for which volume change measurements were measured suffered a reduction in the angle of internal friction. Direct shear test produced shear strength parameters ( $Q$  and  $c$ ) higher than those produced by the triaxial tests.