# PHYSICAL PROPERTIES OF SOIL SEDIMENT IN WADIARAR, KINGDOM OF SAUDI ARABIA

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## ABSTRACT

The top half meter of the surface deposits of wadiArar, that extend for 22 km at north-east direction and located between latitudes $30^{o}$ 45′ and $31^{o}$ 00′ N and longitude $40^{o}$ 30′ and $41^{o}$ 05′ E is a mature river deposits. The deposits of studied area are silty sand as unified soil classification system (USCS). The average contents of sand, silt and gravel are 54%, 30% and 16% respectively. The $Y = A.X^{B}$ equation and equation of Y = A. lnX+B represent the best two mathematical forms to represent the grains size distribution. Where Y represents the percentage of passing (%Pass), while X represent the sieve diameter by mm. Otherwise, the sudden change in the proportion passing 1 mm means no feeding from the source with this size which may reflect the change of the mineral composition.

Comparing between the start and the end of the study area, it was found that the average content of sand and silt decrease from 57% to 54% and from 32% to 28% respectively, while, the average content of gravel increase from 11% to 19%. This is a result of the convergence of the Sha'ibs with WadiArar. Otherwise, at the meandering point bars, it was found that for the whole three meanders the average contents of sand content was the highest, then, silt and gravel with 53%, 33%, 13% respectively. Either the sand content was the highest or the gravel was the lowest for each meander.

**KEYWORDS:** Grain Size Distribution, Physical Properties, Sediment, Soil Grains, WadiArar