



*Effect of Crushed Stones aggregate addition
on the mechanical properties of the soil
material*

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ABSTRACT

Clayey soils are a worldwide problem that poses several challenges for civil engineers. Such soils swell when given an access to water and shrink when they dry out. Utilization of industrial waste materials in the improvement of soils is a cost efficient and environmental friendly method. In the present work, an attempt has been made to improve the mechanical properties of clayey soil obtained from Al-Araby district to the north of Mosul city , by the addition of crushed aggregate, obtained from the waste of Terrazo Tiles factories located in the industrial area in situated in the polluted industrial area, to the east side of Mosul city.. This abandoned waste by product material available in large quantity in these factories with cheap price. Different percentages of the crushed aggregate by weight (passing sieve No.4 and remains on sieve No. 40) were added namely (3, 6, 9, 15) to the soil, to reduce its volume change (compressibility) and improve its strength characteristics in terms of unconfined compressive strength test. Also, replacements of the optimum percentage of crushed aggregate by an amounts of lime material have been occurred. Number of complementary techniques were used to identify the index properties of soil and waste materials used, in addition to laboratory tests to notice the variation on the strength and compressibility of treated soils such as unconfined compressive strength and consolidation tests. The test results showed that 9% of crushed aggregate could be consider the optimum stabilization percentage, at which maximum amount of dry density and compressive strength, and less amount of optimum moisture content, axial deformation and soil compressibility have been noticed. Replacement of crushed aggregate by different amounts of lime material, shows a modification in the compressive strength values, which developed with the increment in the curing periods of the treated soils with lime-crushed aggregate mixtures.