

عنوان مقاله:

Investigating the Effect of Nanoclay Additives on the Geotechnical Properties of Clay and Silt Soil

محل انتشار:

مجله مهندسی عمران و مصالح کاربردی، دوره 3، شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 12

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خلاصه مقاله:

With the rapid development of nanotechnology multi-disciplinary cross applications as well as the limitations of traditional materials, nanomaterials have been introduced to improve the soil. This paper investigates the potential advantages of nanotechnology for innovative solutions in the area of soil improvement. Studies on applied nanomaterials in geotechnical engineering show the way these nanoparticles are applied to improve soil engineering parameters. In the present Study, we aimed to investigate the effect of adding Nano clay on the geotechnical properties of clay and silt soil and improve their engineering properties. For this purpose, a series of tests were conducted including granulation, uniaxial, direct shear, Atterberg limits, compaction and triaxial tests on clay and silty soils. The results show that the liquid and plastic limits of soil will increase with increase in nanoparticles in soil composition. Also according to the results of compaction test, with increase in Nano clay the unit weight of clay soil will increase and optimum moisture content will decrease. According to the results from direct shear tests, by increase in nanoparticles, the adhesion of clay and silt soils also increase, however the internal friction angle of both clay and silt soil is reduced.

کلمات کلیدی:

Geotechnical, Nano Clay, Optimum moisture content, Adhesion, Internal friction angle

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