عنوان مقاله:

Influence of Chemical Admixtures on Geotechnical Properties of Expansive Soil

محل انتشار:

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خلاصه مقاله:

The present study is to elucidate and efficacy of Ultra-fine slag and Calcium Chloride in improving the Engineering characteristics of expansive soil. An experimental program has evaluated the effects of Ultra-fine slag ۳%, ۶%, ۹% and CaCl۲ ۰.۲۵%, ۰.۵%, ۱.۰%, Free swell index, swelling potential, swell pressure, plasticity, compaction, strength, hydraulic conductivity, Cation Exchange Capacity and microstructural XRD, SEM tests of expansive soil and also a statistical tool was used to predict the experimental values of unconfined compressive strength of the soil. Both admixtures were added independently and blended to the expansive soil. Mixing of Ultra-fine slag, CaCl۲ and expansive soil results have shown that plasticity index, hydraulic conductivity, swelling properties of blends decreased and dry unit weight and unconfined compressive strength is increased in combination of soil +۶% of Ultra-fine slag + ۱% CaCl۲. The unconfined compressive strength (UCS) of the samples is again found to decrease slightly beyond ۶% Ultra-fine slag and ۱% CaCl۲. It was found that the optimum quantity of material for a favorable combination of soil +۶% of Ultra-fine slag + ۱% CaCl۲ was taken for further study in view of its economy due to lower CaCl۲ content.

کلمات کلیدی:

expansive soil, Ultra-fine slag, Calcium Chloride, Unconfined compressive strength