The Effect of Soil Binder and Gypsum to the Changes of the Expansive Soil Shear Strength Parameters

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Abstract: Many methods of soil stabilization that can be done such as by mixing chemicals. In this research, stabilization by mixing the soil using two types of chemical admixture, those are gypsum with a variation of 5%, 10%, and 15% and Soil binder with a concentration of 20 gr / lot of water, 25 gr / lot of water, and 30 gr / lot of water aimed to determine the effect on the soil plasticity index values and comparing the value of shear strength parameters of the mixture with the original soil conditions using a Triaxial UU test. Based on research done shows that with increasing variations in the mix, then the value of plasticity index decreased, which was originally 42% (very high degree of swelling) becomes worth 11.24% (lower Swelling degree) when a mixture of gypsum 15% and 30 gr / Lt water soil binder. As for the value shear, strength parameters increased in all variations of mixture. Admixture with the highest shear strength parameter's value is at 15% the mixture of gypsum and 20 gr / litre of water of soil binder with the 14 day treatment period, which has enhanced the cohesion value of 559.01%, the friction angle by 1157.14%. And a shear strength value of 568.49%. It can be concluded that the admixture of gypsum and soil binder correctly, can increase the value of shear strength parameters significantly and decrease the value of plasticity index of the soil.

Keywords: expansive soil, gypsum, soil binder, shear strength

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