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Effect of Leachate Presence on Shear Strength Parameters of Bentonite-Amended Zeolite Soil

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Abstract : Over recent years, due to increased population and increased waste production, groundwater protection has become more important, therefore, designing engineered barrier systems such as landfill liners to prevent the entry of leachate into groundwater should be done with greater accuracy. These measures generally involve the application of low permeability soils such as clays. Bentonite is a natural clay with low permeability which makes it a suitable soil for using in liners. Also zeolite with high cation exchange capacity can help to reduce of hazardous materials risk. Bentonite expands when wet, absorbing as much as several times its dry mass in water. This property may effect on some structural properties of soil such as shear strength. In present study, shear strength parameters are determined by both leachates polluted and not polluted bentonite-amended zeolite soil with mixing rates (B/Z) of 5%-10% and 20% with unconfined compression test to obtain the differences. It is shown that leachate presence causes reduction in resistance in general.

Keywords : bentonite, leachate, shear strength parameters, unconfined compression test
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