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Processed and natural clays are widely used to construct impermeable liners in solid waste disposal landfills. The engineering properties of clay liners can be significantly affected by the leachate from the waste mass. In this study, the effect of inorganic salt solutions on consistency and compressibility characteristics of compacted clay was investigated at different concentrations. Two type of inorganic salt  $MnSO_4$  and  $FeCl_3$  are used at different concentration 2%, 5%, and 10%. The Clay used was the CL- clay (kaolinite). The result shows that the consistency limits increased as the concentration of salts increased, while the compression index ( $C_c$ ) decreases as the concentration increased from 2% to 5%, after that the  $C_c$  is nearly constant. The swelling index ( $C_e$ ) tends to increase slightly as the concentration of  $MnSO_4$  increased, while it decreases as the concentration of  $FeCl_3$  increased