عنوان مقاله:
Compacted Kerman Clay Liner, Different Permeants and Different Additives

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خلاصه مقاله:
This study investigates the feasibility of using Kerman collapsible clay excavated in an urban project as landfill liner material. Several technical requirements must be addressed for a material to be used as liners among which low hydraulic conductivity and high compressive strength are the most important. To achieve this goal, a set of laboratory tests are conducted on the prepared samples. Sample preparation is done and the soil is tested in pure form as well as in lime, bentonite and Nanoscale treated forms. Two different methods are used to determine the permeability of the specimens, falling head (with a direct method), and consolidation (with an indirect method). The results indicated that overall, the hydraulic conductivity obtained from the consolidation test is lower than those of falling head tests. The falling head method is conducted for all specimens using municipal and synthetic leachate instead of water. Samples with ۰.۴% Nanosilica and ۸% lime under municipal waste leachate met the EPA permeability requirements. The same procedure is carried out under the synthetic leachate and the results show that only the specimen with ۰.۴% Nanosilica met the EPA regulation standard. The unconfined compression strength values exhibit a considerable increase in addition of lime and Nanosilica and a gradual decrease with adding bentonite. This study verifies that Kerman clay can be used as a liner material when supplemented with lime and Nanosilica.

کلمات کلیدی:
Liner, Treated, nanosilica, lime, Bentonite