

Behaviour of GCL mineral component treated with site-specific liquid

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ABSTRACT

In recent years geosynthetic clay liners (GCLs) have been frequently applied in geotechnical and environmental engineering projects in Croatia. In line with ASTM recommendation the clay portion of a GCL should be tested for chemical compatibility to liquids. In order to evaluate the behaviour of GCL mineral component, two types of available bentonites (granules, and powder) have been tested. According to standard guide for acceptance testing requirements for GCLs, mineral composition, swell index, fluid loss and water absorption capacity of bentonite have been determined. The site-specific liquid i.e. real leachate was collected from the leachate retention basin of a municipal solid waste disposal site Jakusevec near Zagreb. The results show certain influence of leachate to the bentonite behaviour. This is proved by the results of XRD analyses as well as by the results of the above mentioned index tests.

Keywords: GCLs, bentonite, index tests, XRD analyses, chemical compatibility