

# Hydraulic behaviour of dune sand bentonite mixtures under confining stress

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## **Abstract :**

Compacted layers of sand-bentonite mixtures have been proposed and used in a variety of geotechnical projects as engineered barriers for the enhancement of impervious landfill liners, cores of zoned earth dams and radioactive waste repository systems. In the practice we try to get an economical mixture that satisfies the hydraulic and mechanical properties specified by regulation rules. The effect of the bentonite additions on the mixture is reflected by its capability of clogging the matrix pores upon swelling. In order to get an adequate dune sand-bentonite mixture, an investigation on hydraulic and mechanical behaviours is carried out in this study for different mixtures. Using oedometer test, the adequate bentonite addition to the mixture, which satisfies the conditions on permeability, is found to be around 12% to 15 %. These results are also confirmed by direct measurement using triaxial cell.

**Keywords :** Dune sand; Bentonite; saturated permeability; insulation barriers; south of Algeria.

**Journal Title / Revue :** GEOMECHANICS AND ENGINEERING, ISSN : 2005-307X, Issue : 3, Volume : 2, pp. 213-227,2010.