



Anti-liquefaction performance of rubber-sand mixture for water treatment

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ABSTRACT

In this paper, GDS Dynamic Triaxial Tests were carried out to measure the dynamic pore water pressure and dynamic stress-strain of samples, with rubber particle size, rubber particle dosage, confining pressure and consolidation stress ratio as variables. The variation laws of anti-liquefaction performance of waste tire rubber-sand mixture (RSM) roadbed model samples under the action of different variables were researched. By comparing the anti-liquefaction performance of RSM samples under different test conditions, it was found that (1) the growth of dynamic pore water pressure of RSM samples under the action of cyclic loading could be divided into three stages. With a larger rubber particle size, the anti-liquefaction performance of the RSM samples was significantly enhanced. The anti-liquefaction performance of samples was also improved in the case of larger confining pressure and consolidation stress ratio. (2) When rubber particle content was 30%, the sand was hard to be liquefied under the action of cyclic loading. However, this method is not compliant with the actual engineering construction conditions. These conclusions are of guiding significance to engineering practices.

Keywords: Waste tire rubber particles; Anti-liquefaction performance

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