

Contruction of the Constriction Curve-Comparison between Three Different Approaches (Discrete Element Method Triangulation Delaunay, Probabilistic Approach, Inverse Approach)

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20291778&lokasi=lokal>

Abstrak

The internal erosion is a common mode of failure in earth dams. The phenomenon of filtration process corresponds to a transport over long distances of fine particles under the effect of seepage forces. The filters arranged by both sides of the clay core are supposed to be dimensioned so to stop this transfer. In a granular material, the constriction is very important in the filtration process. It is the narrowest path linking pores. If there is a fluid flow and the constriction size is larger than the diameter of particle, the particle follows its route. On the other hand, if the constriction size is smaller than the diameter of particle, the particle is stopped. Then, the curve of cumulative size constrictions for a granular material is identified as the key characteristic of the filtration process. This characteristic depends on the density and size distribution curve of the filter. The objective of this research is to find and compare the curve with three different approaches by using periodic conditions. These three approaches are MEDTD (Discrete Element Method Triangulation Delaunay), the probabilistic approach and the inverse approach by experiment.