

Mechanical Characterization and Impact Study on the Environment of Raw Sediments and Sediments Dehydrated by Addition of Polymer

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Abstract : Large volumes of river sediments are dredged each year in Europe in order to maintain harbour activities and prevent floods. The management of this sediment has become increasingly complex. Several European projects were implemented to find environmentally sound solutions for these materials. The main objective of this study is to show the ability of river sediment to be used in road. Since sediments contain a high amount of water, then a dehydrating treatment by addition of the flocculation aid has been used. Firstly, a lot of physical characteristics are measured and discussed for a better identification of the raw sediment and this dehydrated sediment by addition the flocculation aid. The identified parameters are, for example, the initial water content, the density, the organic matter content, the grain size distribution, the liquid limit and plastic limit and geotechnical parameters. The environmental impacts of the used material were evaluated. The results obtained show that there is a slight change on the physical-chemical and geotechnical characteristics of sediment after dehydration by the addition of polymer. However, these sediments cannot be used in road construction.

Keywords : river sediment, dehydration, flocculation aid or polymer, characteristics, treatments, valorisation, road construction

Conference Title : ICCCE 2016 : International Conference on Civil and Construction Engineering

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2016