

Moisture-Density and Stiffness of Illinois Bottom Ash Modified with Sodium Montmorillonite

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ABSTRACT

Because of the increasing costs associated with the disposal of bottom ash and the environmental regulations in place, there exists a significant need to develop alternate methods for profitable and environmentally safe uses of this waste material. The physical properties of bottom ash are similar to that of natural sand with particles size ranging from fine gravel to fine sand with low percentages of silt and clay sized particles. Bottom ash has been used in the past as a substitute for aggregates in concrete. However, not much effort has been made in examining moisture-density and stiffness of bottom ash, and as a consequence, its use in geotechnical engineering applications is still very limited. Characteristics of bottom ash significantly depend on the type of coal burned and the type of furnace used to burn the coal. This paper will present the results of an experimental study conducted to develop technical data on moisture-density relationships and stiffness of Illinois PCC dry bottom ash modified with sodium montmorillonite (sodium bentonite). Bottom ash-bentonite mixtures with up to 20% bentonite were tested.