Stabilization of Soils with Self-Cementing Coal Ashes

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ABSTRACT

Fly ash produced during the combustion of subbitiminous coals exhibit self-cementing characteristics that can be adapted to a wide range of soil and aggregate stabilization methods for construction applications. Upon exposure to water, cementitious products are produced providing the mechanism by which stabilization is achieved. This hydration reaction progresses at a relatively rapid rate and dictates the construction procedures required to achieve full benefit from the stabilization process. Strict control of moisture contents at time of compaction and limiting the length of time between incorporation of the fly ash and final compaction is critical to the success of the process. In the late 1970's when these ashes first became available these factors were not understood and many projects failed to meet expectations, greatly hindering development of the stabilization market. As experience was gained, these problems were avoided and use of the ashes became a routine construction method. Many projects have performed well for over 20 years, a testament to the benefits that can be achieved through ash stabilization. This paper presents a state-of-the practice overview on the use of self-cementing ash for stabilization of soils.

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