

Shrink Swell Characteristics of Concrete Composite Made with Illinois Bottom Ash

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KEYWORDS: bottom ash, coal combustion, concrete composites, sealed shrinkage, free swell, sulfate resistance

ABSTRACT

For many years fly ash has been recognized as a construction material and has been used frequently as a component of Portland cement concrete products as well as the primary component of embankments, structural fills, and road sub bases. Bottom ash, like fly ash, is a byproduct of coal combustion which, unless utilized in some manner, becomes an environmental and disposal concern. However, the use of bottom ash as a construction material has not yet been as adequately studied as has fly ash. Recently, an extensive laboratory and field studies have been completed at Southern Illinois University Carbondale, to develop concrete composites by using Illinois bottom ash obtained from burning Pulverized Coal. This paper will present sealed shrinkage, free swell, and resistance to sulfate attack characteristics of the concrete composites compared to an equivalent concrete. Results will be presented to show that strength of the concrete composites is similar to that of an equivalent concrete. However, sealed shrinkage and free swelling are slightly greater than that of an equivalent concrete.

Submitted for consideration in the 2007 World of Coal Ash Conference, May 7-10, 2007