USE OF COAL COMBUSTION PRODUCTS IN PERMEABLE ROADWAY BASE CONSTRUCTION

By Tarun R. Naik, Rudolph N. Kraus, Rafat Siddique, and Paul Ziemkiewicz
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ABSTRACT

This paper presents the results of an investigation carried out to develop permeable base course materials using coal combustion products (CCPs) for roadways, highways, and airfield pavements. Three sources of CCPs were selected for this investigation. These include two sources of high-carbon/sulfate-bearing CCPs, which did not meet ASTM C 618 requirements for coal fly ash for use as mineral admixture in concrete, and one source of variable carbon fly ash.

These CCPs were used for no-fines/low-fines concrete as a permeable base material. Two types of mixtures were developed using each of these by-products for base course materials. In these mixtures, the amount of fines was varied for the permeable base, one with open-graded and one with an intermediate-graded structure. Tests were performed for fresh concrete properties as well as for compressive strength, splitting tensile strength, flexural strength, etc. The performance of the permeable base mixtures containing CCPs was also compared with a reference mixture without any ash.

Test results up to 181 days of testing indicate that CCPs materials can be effectively used as a permeable base course material.