

# **USE OF COAL COMBUSTION PRODUCTS IN PERMEABLE ROADWAY BASE CONSTRUCTION**

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## **ABSTRACT**

This investigation was conducted to develop permeable base course materials for roadways, highways, and airfield pavements using coal combustion products (CCPs). Three sources of CCPs were selected for this investigation. They were 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 in developing two types of mixture proportions (no-fines/low-fines concretes) for permeable base 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 compared with a control mixture without any ash. Test results indicated that open-graded and intermediate-graded base course materials could be proportioned to have 28-day compressive strength of 7.82 MPa and 15 MPa, respectively, and there was further increase in strength with age. Based on the results it could be concluded that CCPs materials can be effectively used as a permeable base course material.