

# **STRENGTH PROPERTIES OF HIGH PERFORMANCE CONCRETE USING BOTTOM ASH AS FINE AGGREGATE**

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## **ABSTRACT**

To safeguard the environment, efforts are being made for recycling the industrial wastes and utilise them in value added applications. Advances in solid waste management resulted in alternative construction materials as a substitute to traditional materials like aggregates, cement and etc., This paper reports the results of an experimental program to investigate the effect of using thermal power station bottom ash as a replacement of natural fine aggregate on the properties of High performance concrete (HPC). Totally 10 mixes were prepared for this tests. Out of which five are Bottom ash Concrete (BAC) and five are Conventional Concrete mixes (CC). BAC were prepared for various cement contents ranging from 300 Kg/m<sup>3</sup> to 500 Kg/m<sup>3</sup> by adding 10% of silica fume in the volume of the cement and replacing 40% of the volume of the fine aggregate by bottom ash. BAC mixes were evaluated for compressive, tensile and flexural strengths development for the concrete ages of 7 days,28 days,56 days and 90 days and the results were compared with those of CC mixes prepared for same quantity of cement ranging from 300 Kg/m<sup>3</sup> to 500 Kg/m<sup>3</sup>.

**KEYWORDS:** Bottom Ash, High Performance, Industrial Waste, Mechanical Properties, Silica Fume