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Experimental Investigation on Strength and Durability Characteristics of Flyash Concrete by Incoroprating Electric Arc Furnace Dust

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Abstract : Concrete is used widely in infrastructure industries for construction of buildings, water reservoirs and architectural structures. Enhancement of properties of concrete is always aspired for increasing durability and strength of structures. The strength of the concrete can be increased when additives like flyash and electric arc furnace slag is added. This study focuses on replacement of cement by using electric arc furnace dust (EAFD) & flyash. Flyash was kept constant as 30Wt% and electric arc furnace dust was varied as 5Wt% and 7.5Wt%.The mechanical strength characteristics of concrete was determined by conducting compression strength test and split tensile strength test. The compression strength of the concrete was found to be increased when compared with the conventional concrete. Simultaneously there was increase in tensile strength of the concrete. In order to ensure durability characteristics of the concrete alkalinity test and sulphate resistance test was performed. In alkalinity test the pH value of the concrete was between 9.5 to12 and it was ensured that the prepared concrete is alkaline and the concrete offered a better resistance to sulphate attack.

Keywords : Concrete, flyash, electric arc furnace dust, compression strength, split tensile test, alkalinity

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