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Effect on strength of concrete by partial replacement of cement with class F fly ash

Fly ash is an industrial waste which contributes to environmental pollution. However, it can be neutralized by using it as a cementitious raw material in the making of ordinary Portland cement concrete. In this paper, we have assessed the strength of concrete made by partially replacing cement with class F fly ash. Concrete cube samples with incrementally increasing class F fly ash supplements were tested at the 7th and 14th day with UTM machine. Results revealed that with the increase in quantity of class F fly ash, compressive strength of concrete decreased. The drop in compressive strength was found to be more rapid on 7th day samples than 14th day samples. Interestingly, 14th day specimen of 15 percent class F fly ash composition in concrete cubes yielded optimum values of compressive strength. Findings of this study comprehensively confirmed the kind of impact class F fly ash should have on concrete's compressive strength theoretically. To further substantiate the plausibility of using class F fly ash as a raw material in concrete, this study recommends the use of lime and binding agents along with fly ash, which should be tested for longer periods of time

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