



A Study on Durability of Concrete by Partial Replacement of Cement with Bentonite

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Abstract : The main aim of this study is to search an alternative of cement and to present an experimental study on the durability properties of concrete with the replacement of cement with calcium bentonite. In this paper, six samples of the same grade at desired bentonite percentage of 10, 15, 20, 25 and 30 in comparison with the control mix (CM). The durability properties were studied through sulfate attack (H_2SO_4) and alkali attack (NaOH). The lower compressive strengths were observed for the bentonite mixes, after 28 days cured in water. The weight losses were observed in both sulfate and alkali attacks. The random variation of compressive strengths of the samples was observed, after 28 days of water curing and 30 days cured with H_2SO_4 and NaOH. The increase in strength of bentonite mixes is due to the increase in age and not due to the durability attacks.

Key words: Bentonite, Durability, Sulfate attack, Alkali attack, Compressive strength.

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