

Influence of Gum Acacia Karroo on Some Mechanical Properties of Cement Mortars and Concrete

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Abstract : Natural admixtures provide concrete with enhanced properties but their processing end up making them very expensive resulting in increase to cost of concrete. In this study the effect of Gum from Acacia Karroo (GAK) as set-retarding admixture in cement pastes was studied. The possibility of using GAK as water reducing admixture both in cement mortar concrete was also investigated. Cement pastes with different dosages of GAK were prepared to measure the setting time using different dosages. Compressive strength of cement mortars with 0.7, 0.8 and 0.9% weight of cement and w/c ratio of 0.5 were compared to those with water cement (w/c) ratio of 0.44 but same dosage of GAK. Concrete samples were prepared using higher dosages of GAK (1, 2 and 3% wt of cement) and a water binder (w/b) of 0.61 were compared to those with the same GAK dosage but with reduced w/b ratio. There was increase in compressive strength of 9.3% at 28 days for cement mortar samples with 0.9% dosage of GAK and reduced w/c ratio.

Keywords : compressive strength, Gum Acacia Karroo, retarding admixture, setting time, water-reducing admixture

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