The Effect of Green Inhibitor on Strength and Water Permeability of Concrete

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Abstract

Reinforce concrete durability treated with green inhibitor were experimentally studied. The permeability and strength of a concrete plays a critical and significant role in controlling the properties of concrete, and serviceability of reinforced concrete. It is a usual practice to assess the water permeability characteristics when assessing the durability characteristics. In the present investigation, initial surface absorption test was used to determine the water permeability of concrete of w/c (0.45) to simulate compacted and porous concrete. *Bambusa arundinacea* green inhibitor absorptions for 10min, 30min, 1h and 2h, is generally less than 0.25, 0.17, 0.1 and 0.07 ml/m2.s respectively, that is, the set ISAT standard for low permeability concrete. This might be possible as a result of residual alkalinity of potassium hydroxide (KOH) present in the concrete evident from inductively coupled plasma-mass spectrometry (ICPMS) result. KOH is adequate for passivation and reduction of permeability, which serve as a chemical water barriers or hydrophobic agents.

Keywords: Concrete, Calcium-Silicate-Hydrate (C-S-H), Compressive strength, Permeability, Portlandite

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