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Durability of lightweight OPS concrete under different curing conditions

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Abstract

The use of waste materials and by products from different industries for building construction has been gaining increased attention due to the rapid depletion of natural resources. It has been found that oil palm shell (OPS), which is a waste from the agricultural sector, can be used as coarse aggregate for the manufacture of structural lightweight concrete. However, for OPS concrete to be used in practical applications, its durability needs to be investigated. Therefore, this paper presents the durability performance of OPS concrete under four curing regimes. The durability properties investigated include the volume of permeable voids (VPVs), sorptivity, water permeability, chloride diffusion coefficient and time to corrosion initiation from the 90-day salt ponding test, and Rapid Chloride Penetrability Test (RCPT). Results showed that the durability properties of OPS concrete were comparable to that of other conventional lightweight concretes and proper curing is essential for OPS concrete to achieve better durability especially at the later ages. © 2009 RILEM.

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