

Lightweight concrete made from oil palm shell (OPS): Structural bond and durability properties

Abstract

The first part of this experimental program was to determine the structural bond properties of lightweight concrete incorporating solid waste oil palm shell (OPS) as coarse aggregate and also to compare its behaviour with other types of lightweight aggregate concretes. Other properties of OPS concrete namely the split tensile strength, modulus of rupture and modulus of elasticity were also determined. The structural bond properties were determined through pull-out test. The results showed that the experimental bond strength of OPS concrete was much higher than the design bond strength as stipulated by BS 8110. In general, the properties of OPS concrete compared well with that of other structural lightweight concretes and the results obtained encourage the use of OPS as aggregates for the production of structural lightweight concrete. The second part of the experimental program investigates the durability performance of OPS concrete through water permeability and water absorption tests. (c) 2006 Elsevier Ltd. All rights reserved.