

Structural concrete using oil palm shell (OPS) as lightweight aggregate

Abstract

This paper presents part of the experimental results of an on-going research project to produce structural lightweight concrete using solid waste, oil palm shell (OPS), as a coarse aggregate. Reported in the paper are the compressive strength, bond strength, modulus of elasticity, and flexural behaviour of OPS concrete. It was found that although OPS concrete has a low modulus of elasticity, full-scale beam tests revealed that deflection under the design service loads is acceptable as the span-deflection ratios ranged between 252 and 263, which are within the allowable limit provided by BS 8110. Laboratory investigations show encouraging results and it can be summarised that OPS has good potential as a coarse aggregate for the production of structural lightweight concrete, especially for low-cost housing construction and also for use in earthquake prone areas.