

Development of Non-Structural Crushed Palm Kernel Shell Fine Aggregate Concrete

Authors : Kazeem K. Adewole, Ismail A. Yahya

Abstract : In the published literature, Palm Kernel Shell (PKS), an agricultural waste has largely been used as a large aggregate in PKS concrete production. In this paper, the development of Crushed Palm Kernel Shell Fine Aggregate Concrete (CPKSFAC) with crushed PKS (CPKS) as the fine aggregate and granite as the coarse aggregate is presented. 100mm x 100mm x 100mm 1:11/2:3 and 1:2:4 CPKSFAC and River Sand Fine Aggregate Concrete (RSFAC) cubes were molded, cured for 28 days and subjected to a compressive strength test. The average wet densities of the 1:11/2:3 and 1:2:4 CPKSFAC cubes are 2240kg/m³ and 2335kg/m³ respectively. The average wet densities of the 1:11/2:3 and 1:2:4 RSFAC cubes are 2606kg/m³ and 2553kg/m³ respectively. The average compressive strengths of the 1:11/2:3 and 1:2:4 CPKSFAC cubes are 15.40MPa and 14.30MPa respectively. This study demonstrates that CPKSFA is suitable for the production of non-structural C8/10 and C12/15 concrete specified in BS EN 206-1:2000.

Keywords : crushed palm kernel shell, fine aggregate, lightweight concrete, non-structural concrete

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