

The Effect of Unground Palm Oil Fuel Ash Content as a Partial Sand Replacement on Compressive Strength of Oil Palm Shell Lightweight Aggregate Concrete

KhairunisaMuthusamy
Mohd Hanafi Hashim
Mohd Nazrin Akmal Ahmad Zawawi

Abstract: Concern towards negative impact towards the environment due to increasing use of natural sand in construction industry and dumping of soil wastes, palm oil fuel ash and oil palm shell by palm oil industry has lead towards the development of environmental friendly lightweight concrete. The present study investigates the effect of unground palm oil fuel ash as partial sand replacement towards workability and compressive strength of oil palm shell lightweight aggregate concrete. Two types of mixes were used. Control specimen were prepared using 100% natural sand. Another type of mix were prepared by integrating various percentages of unground palm oil fuel ash as partial sand replacement. The concrete workability were investigated by conducting slump test in accordance to BSEN 12350 : 2. All specimens were cast in form of cubes and water cured until the testing age. The compressive strength test were carried out in accordance to BSEN12390: 3 at 1,3, 7 and 28 days. The finding shows that integration of 10% unground palm oil fuel ash as partial sand replacement contributes to the enhancement of oil palm shell lightweight aggregate concrete strength.

Keywords: Unground Palm oil fuel ash, Partial Sand Replacement, Lightweight Aggregate Concrete, Compressive strength, Workability
