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Performance of Recycled Aggregate Containing POFA as Additives for Cement

Suraya Hani Adnan^{1*}, Mohd Haziman Wan², Norwati Jamaluddin² and Nurul Hazarine Zakaria²

¹Faculty of Technology Engineering, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia.

²Faculty of Civil and Environmental Engineering, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia.

Abstract. Malaysia has been the largest producer and exporter of palm oil in the world, accounting for 52% of the total world oil in year 2006. The waste disposal problem from palm oil industry was increasing. In addition, the government also facing the problems when forced to allocate more landfill for the disposal of concrete waste. Nowadays, the by-product the palm oil mill has becoming potentially to be utilized as construction material in term as additives for cement. This paper discussed the water absorption and compressive strength of Recycled Aggregate Concrete (RAC) containing Palm Oil Fuel Ash (POFA). There are twelve (12) series of concrete mix containing POFA and recycled aggregate (RA) were used as additives for cement that have been indicated as POFA-0%, POFA-10%, POFA-20%, POFA-30% and RA-0%, RA-50% and RA-100%. The slump test was conducted to determine the performance of fresh concrete. The hardened concrete have been tested its compressive strength and water absorption of POFA-concretes at 7 and 28 days of water curing ages. The results revealed that POFA-recycled aggregate concrete has lower water absorption and higher compressive strength compared to recycled aggregate concrete without POFA. The optimum additional of POFA was 30% for concrete made with 100% Natural Aggregate (NA) produced higher compressive strength and lower water absorption.

Keywords. *Recycled Aggregate Concrete, Palm Oil Fuel Ash, Compressive Strength, Water Absorption*

*suraya@uthm.edu.my