

The Performance of Eggshell as Filler in Concrete Mixtures

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Abstract

Egg indeed is one of the major sources of protein in most of the South East Asian countries such as Singapore, Thailand, Philippines, Indonesia and Vietnam. High consumption of eggs has generated large amount of eggshells to be disposed. The usage of food wastes such as eggshells in Malaysia is very limited compared to the European countries (Maybank IB research, 2011). Land filling is a common method for waste disposal. Due to Zaini (2011) revealed that the dumping site in Malaysia has increased in an alarming rate. Such incident has encouraged Malaysian government to open more dumping site resulting the scarcity of land. The scarcity of land has increase the cost of landfill tremendously (Chandravathani., 2006). Eggshell waste falls within the category of food waste, which is materials from the preparation of foods and drinks, if subjected to adequate scrutiny, and they could can be suitable alternative material for construction (Amu et al, 2005). Thus, this paper focused on using egg shell as filler in concrete mixture. The egg shells are mixed into the concrete as filler up to 20%. The performance of concrete mixture is defined though slump test, compressive strength test, flexural test, water absorption test and water penetration test.

Keywords

Egg shell, concrete filler, waste management

Biography

Doh Shu Ing has more than 9 years industrial and research experience in civil engineering with career path that span from project supervision, project implementation, project management, technical support and material development. In 2006, Doh joined Sabah University of Malaysia in their research work on material development funded by Construction Industry Development Board Malaysia. In this research Doh has published over 9 local and international conference papers and journal. In 2009, Doh has won The CIDB Award: Best Invention in Building and Construction, Gold Medal in 20th International Invention, Innovation & Technology Exhibition, and Bronze Prize in Seoul International Invention Fair 2009. In mid 2009, Doh joined Universiti Tunku Abdul Rahman as a lecturer in both Construction Management and Environmental Department. The major subjects taught are Construction Technology, Site Survey, Reinforced Concrete Design and Building Structural System. His area of expertise covers the green material development, IBS system and environmental design.