UNIVERSITI TEKNOLOGI MARA

BLENDED BINDER SYSTEM CONTAINING WASTE PAPER SLUDGE ASH (WPSA) AND PALM OIL FUEL ASH (POFA) FOR SOLIDIFICATION/STABILIZATION (S/S) METHOD IN TREATING CERAMIC SLUDGE

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Dissertation submitted in partial fulfilment of the requirements
for the degree of

Master of Science in Civil Engineering
(Environment)

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AUTHOR'S DECLARATTION

I declare that the work in this dissertation was carried out in accordance with the regulation of Universiti Teknologi Mara. It is original and is the result of my own work, unless otherwise indicated or acknowledge as reference work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

In the event that my dissertation be found to violate the condition mentioned above, I voluntary waive the right of conferment of my degree be subjected to the disciplinary rules and regulation of Universiti Teknologi Mara.

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ABSTRACT

Ordinary Portland cement (OPC) was the major binder used in Solidification/Stabilization (S/S) method. The problems created by cement industry in producing OPC such as emission of carbon dioxide to the environment and high energy used cause new alternative introduced through this study to replace OPC with other material to be act as a binder in S/S method. An experimental study of the use of an industrial by-product as a binder in (S/S) has been performed. The influence of the variable mixes composition of POFA and WPSA in producing blended binder system has been studied. The compressive strength and Toxicity Characteristic Leaching Procedure was used to evaluate the effect of POFA and WPSA to the solidified/stabilize ceramic sludge after 28 days of water curing. The sufficient compressive strength and significant reduction in heavy metal Cr,Pb,Ni, and Cu shows the potentiality of using POFA and WPSA in producing blended binder system in treating ceramic sludge.

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