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Adhesion Characterization of Palm Oil Mill Sludge Modified Asphalt Binder

(2022) *International Journal of Integrated Engineering*, 14 (5), pp. 107-113.

DOI: 10.30880/ijie.2022.14.05.012

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Abstract

The adhesion of mineral aggregates to asphalt binder is an essential point that attributes to the quality and performance of the asphalt mixture. Moreover, the considerable problem to the asphalt pavement could come from the lack of bonding between the materials. Generally, adhesion of mineral aggregates depends on the source or type of aggregate and asphalt binder. This study investigated the adherence coverage of palm oil mill sludge (POMS) modified binder with granite aggregate. Base asphalt binder of penetration grade 60/70 was blended with 1%, 2%, 3%, 4% and 5% of POMS to produce the modified asphalt binders, respectively. Consequently, POMS modified binders were mixed with the granite aggregate to produce loose mix samples. In this current study, boiling test procedure was used to reduce the adhesive bonding of the loose mix sample. Then, Image J software was used to evaluate the stripping area of the samples. The results from image analysis revealed that different stripping areas due to different amounts of POMS incorporated in the modified asphalt binder. Up to 4% POMS modified asphalt showed an acceptable resistance toward moisture compared to un-modified asphalt. Image J helped to produce a clear stripping result compared to visual observation. In conclusion, POMS could be used as an asphalt modifier with satisfactory adhesion properties © Universiti Tun Hussein Onn Malaysia Publisher's Office

Author Keywords

Adhesion of asphalt binder; Modified asphalt binder; Palm oil waste

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Publisher: Penerbit UTHM

ISSN: 2229838X

Language of Original Document: English

Abbreviated Source Title: Int. J. Integr. Eng.

2-s2.0-85138220993

Document Type: Article

Publication Stage: Final

Source: Scopus

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