

Coating and insulation effect using emulsified modification bitumen

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ABSTRACT

An operation theatre has to maintain a temperature lower than the ambient condition which may result in condensation which leads to fungi problems. This research aims to eradicate the fungi problems by analyzing the effect on coating and insulation using Emulsified Modification Bitumen (EMB). Bitumen with a penetration value of 60/70 will be modified with a recycled base oil at five different ratios and mixed with a cationic emulsifier and deionized water. Next, the EMB will be coated and dried on the top surface of a substrate (drywall) and will be compared with an industrial grade bitumen emulsion. From the analysis, EMB 05 is the best formulated bitumen emulsion with a percentage area removal of more than 65%. The accelerated, natural and cooling aging period are 296 days, 1107 days and 893 days. The total heat transfer (q) at temperatures of 60 °C, 45 °C, 30 °C, and 27 °C are 1.14 W, 0.79 W, 0.70 W and 0.65 W, respectively. The results obtained in this study have exposed the capability of EMB in coating and insulation in the operation theatre. Further work is nevertheless required to provide a deeper understanding of the mechanisms involved to facilitate the development of an optimum system applicable to the industry.

KEYWORDS

Fungi; Emulsified modification bitumen; Coating; Insulation; Recycled base oil

ACKNOWLEDGMENTS

The authors wish to express their gratitude and appreciation for the financial support from the Ministry of Higher Education (MOHE), Malaysia for the Fundamental Research Grant Scheme (FRGS KPT – RDU160129, Reference Number: FRGS/1/2016/TK02/ UMP/03/2 entitled Rheological and Structural Characterization of Emulsified Modification Bitumen Synthesized from Industrial Wastes) and the Universiti Malaysia Pahang for the Internal Grant (RDU160324). The support from the Faculty of Chemical and Process Engineering Technology and Universiti Malaysia Pahang, Malaysia are also acknowledged.