

Stability and rutting resistance of porous asphalt mixture incorporating coconut shells and fibres

Y. Haryati^a, A. H. Norhidayah^a, M. Nordiana^a, A. Juraidah^b, A. H. Nor Hayati^b, P. J. Ramadhansyah^c, M. Khairil Azman^c and A. Haryati^c

^aFaculty of Engineering, School of Civil Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor Bahru, Malaysia

^bFaculty of Civil Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

^cFaculty of Civil Engineering and Earth Resources, Universiti Malaysia Pahang, 26300 Gambang, Pahang, Malaysia

Corresponding author: ramadhansyah@ump.edu.my

ABSTRACT

The influence of coconut shells (CS) and coconut fibres (CF) on the stability and rutting resistance of porous asphalt mixture is examined. Four different percentage replacement of CS and three different of CF as additives were investigate. CS and CF were put through chemical treatment by soaking them in 5wt% of Sodium Hydroxide (NaOH) solution before being involved in the mixture. Marshall Stability and asphalt pavement analyzer are performed to evaluate the Stability and rutting resistance of porous asphalt mixture. It was found that there appears to be an optimum CS replacement level of 10% and 0.3% CS during which the stability and rutting resistance increase significantly.

KEYWORDS:

Porous asphalt; coconut shells; coconut fibres; Sodium Hydroxide