

Resilient Modulus and Deformation Responses of Waste Glass in Flexible Pavement System

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Abstract : Experimental investigations are conducted to assess a layered structure of glass (G) - rock (R) blends under the impact of repeated loading. Laboratory tests included sieve analyses, modified compaction test and repeated load triaxial test (RLTT) is conducted on different structures of stratified GR samples to reach the objectives of this study. Waste materials are such essential components in the climate system, and also commonly used in minimising the need for natural materials in many countries. Glass is one of the most widely used groups of waste materials which have been extensively using in road applications. Full range particle size and colours of glass are collected and mixed at different ratios with natural rock material trying to use the blends in pavement layers. Whole subsurface specimen sequentially consists of a single layer of R and a layer of G-R blend. 12G/88R and 45G/55R mix ratios are employed in this research, the thickness of G-R layer was changed, and the results were compared between the pure rock and the layered specimens. The relations between resilient module (M_r) and permanent deformation with sequence number are presented. During the earlier stages of RLTT, the results indicated that the 45G/55R specimen shows higher moduli than R specimen.

Keywords : Rock base course, Layered Structure, Glass, Resilient Modulus

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