Evaluation of permanent deformation and durability of epoxidized natural rubber modified asphalt mix

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Abstract. The road distresses have caused too much in maintenance cost. However, better understandings of the behaviours and properties of asphalt, couples with greater development in technology, have allowed paving technologists to examine the benefits of introducing additives and modifiers. As a result, modifiers such as polymers are the most popular modifiers used to improve the performance of asphalt mix. This study was conducted to investigate the use of epoxidized natural rubber (ENR) to be mixed with asphalt mix. Tests were conducted to investigate the performance characteristics of ENR-asphalt mixes, where the mixes were prepared according to the wet process. Mechanical testing on the ENR-asphalt mixes have demonstrated that the asphalt mix permanent deformation performance at high temperature was found to be improved compared to the base mixes. However, the durability studies have indicated that ENR-asphalt mixes are slightly susceptible with the presence of moisture. The durability of the ENR-asphalt mixes were found to be enhanced in term of permanent deformation at high and intermediate temperatures compared to the base asphalt mixes. As conclusion, asphalt pavement performance can be enhanced by using ENR as modifier to face the major road distresses.