

Laboratory evaluation of reclaimed rubber-asphaltic concrete mixes

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Abstract

The aim of this research is to evaluate in the laboratory the effects of introducing reclaimed rubber particles from scrap tires in the preparation of local asphaltic concrete mixes. Rubber is used either to modify the asphalt in the order of 10, 20 and 30% by weight, or 3% by aggregate weight as part of the aggregates. Characterization tests are conducted on the plain and modified binder; and on the optimum Marshall fabricated specimens. Binder tests included penetration, softening point, and viscosity; while tests on the mixes included static tests such as Marshall and Hveem stability, split tensile strength and creep tests, and dynamic tests conducted were resilient modulus, fatigue and permanent deformation behavior at 25 and 45 C. The results showed that softening point of the binder decreased with increasing rubber contents; on other hand, mixes with increased rubber content more than 10% did not show improvement in the properties as compared to mixes with 10% rubber binder; which seems to have more potential in the enhancement of the properties of these mixes. The results will hopefully lead to the modification of the performance of pavement mixes under local conditions.