

Analyzing the Performance Properties of Stress Absorbing Membrane Interlayer Modified with Recycled Crumb Rubber

Authors : Seyed Mohammad Asgharzadeh, Moein Biglari

Abstract : Asphalt overlay is the most commonly used technique of pavement rehabilitation. However, the reflective cracks which occur on the overlay surface after a short period of time are the most important distresses threatening the durability of new overlays. Stress Absorbing Membrane Interlayers (SAMIs) are used to postpone the reflective cracking in the overlays. Sand asphalt mixtures, in unmodified or crumb rubber modified (CRM) conditions, can be used as an SAMI material. In this research, the performance properties of different SAMI applications were evaluated in the laboratory using an Indirect Tensile (IDT) fracture energy. The IDT fracture energy of sand asphalt samples was also evaluated and then compared to that of the regular dense graded asphalt used as an overlay. Texas boiling water and modified Lottman tests were also conducted to evaluate the moisture susceptibility of sand asphalt mixtures. The test results showed that sand asphalt mixtures can stand higher levels of energy before cracking, and this is even more pronounced for the CRM sand mix. Sand asphalt mixture using CRM binder was also shown to be more resistance to moisture induced distresses.

Keywords : SAMI, sand asphalt, crumb rubber, indirect tensile test

Conference Title : ICCESMP 2017 : International Conference on Civil Engineering, Surveying Methods and Principles

Conference Location : Prague, Czechia

Conference Dates : September 04-05, 2017