

Analysis of Laboratory Techniques for Simulating the Effect of Segregation on Rutting Performance of Asphalt Concrete Mixture

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Abstract: Abstract - Segregation occurs on the part of the pavement when the rough material is concentrated on this part and fine materials in others because bad performance on pavements. The purpose of this paper is to discuss the effect of segregation on the rut performance of asphalt pavement mixtures. The materials applied included aggregate and 60/70 asphalt cover. In addition to the control asphalt mixture, 4 artificially segregated mixtures were intended to represent coarse and fine segregation of different grades. Samples to mix design purposes were compacted then the 5 mixes were evaluated in the laboratory with different degree of segregation. An optimal asphalt content (OAC) for all mixtures is determined. The rutting test is performed for various level of temperatures (20oC, 25oC, and 30oC) by using static uniaxial loading strain test. Results of the investigation indicated that the segregation was significantly affected on the rutting performance of the asphalt concrete mix with multiple determinations R2 about 0.9 at different temperatures. As temperature increases, the mixture will more susceptible to rutting and the more finely segregated asphalt mixture (SAM) will exhibit with longer tiredness lifetime. Keywords: Segregation, Rutting, Static uniaxial loading strain test