

The Analysis of the Influence of Nano-Silica on Performance of Bitumen Viscosity

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Abstract

General speaking, bitumen has a crucial role in pavements and flexible pavements often have studied by scientists due to lack of suitable performance. Also, they are often tried to improve their action with increased material. In this study, Nano-silica as the rheological modifier has been combined with the 60/70 pure bitumen in three percentages (%2, %4 and %6) and ultimately, it was compared and evaluated with the pure bitumen under the DSR (Dynamic shear Rheometer) test in two fixed temperatures under deferent variable frequencies. The results of investigating of the master loss modulus show that the more the percentage of nano-sio₂ increases, the more the characteristics and functions of bitumen improve.

Keywords: *Bitumen, Viscoelastic, Nano-Silica, Loss Modulus.*