

FIBRE-REINFORCED ASPHALTIC CONCRETE FOR HIGHLY-STRESSED PAVEMENT AREAS

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ABSTRACT

Modified asphalt mixtures are one of the latest developments in the asphalt industry. Generally, a modifier can enhance the performance of a mixture. It can prevent the binder and aggregate filler from draining when the mixture is hot. The main reason is that a modifier alters the visco-elastic response of the binder. A modifier confers a degree of flexibility at low temperatures and an increased flow resistance at high temperatures, thus retarding the appearance of ruts and cracks.

An application of short-cut acrylic fibres reinforcing the wearing course of asphalt pavement is made in the vicinity of Tragana toll station. So far, (after $3,5 \times 10^6$ of Standard Axle passes), no sign of rutting or other pavement distress is detectable. Solid conclusions for the effectiveness of fibre-reinforced asphalt pavement could not be drawn until after a few more years.

The binder content used at this application was 4,9% including the weight of the fibre (which was 0.2% of pavement weight). According to relevant mix-design tests, in comparison with the non-reinforced similar asphalt mixtures, the addition of acrylic fibres enhances Marshall stability.

KEY WORDS: fibre, modifiers, polymers, asphalt, pavement, performance