

LABORATORY PERFORMANCE ASSESSMENT OF FIBER REINFORCED ASPHALT MIXES

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ABSTRACT

Utilization of asphalt mixes can be in the Czech Republic divided in pavements with standard traffic loading and climate conditions, as well as in pavements with increased requirements on their performance and resistance against occurring impacts (extreme traffic intensities, untypical traffic on aprons, junctions with extreme effects of acceleration and deceleration, eventually sections with higher longitudinal slopes or changing climate conditions). In these cases often stiffer or more fatigue resistant mixes combined with polymer modified bitumen (PmB) should be used. Because sections with such impacts often are shorter the change in mix design might not always be cost effective and technically can cause other problems (change in compaction, construction joints). An alternative for performance adequate pavement is fiber improved mix by scattered 3D reinforcement. As one of present applied research works the benefit of fibers and comparison with other technical solutions has been assessed at the CTU in Prague. The results so far have shown increased stiffness, whereas the fibers improved this performance characteristic in the range of higher temperatures. Improvement in resistance to permanent deformations could be demonstrated and challenging findings could be found in the fatigue testing compared as well.

KEY WORDS: Fiber reinforced asphalt, kevlar fibers, stiffness, permanent deformations, characteristics in low temperature range, fatigue.