

ASPHALT MIXTURES IMPROVED BY THE USE OF NANOTECHNOLOGY

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ABSTRACT

The last remarkable step forward in materials for roads infrastructures market was the development of Polymer Modified Binders (PMBs) during the 1970 decade. The use of polymers in pavements enhances their performance, although the ageing and hardening of the bituminous matrix are still to be solved. Further research is needed in order to develop new affordable and more durable asphalt materials that show less vulnerability to traffic loads and ageing, with the aim of increasing the lifetime of pavements. The main goal of this study is based on the use of nanotechnology to develop advanced high performance asphalt mixtures, suitable for the optimization of asphalt pavement sections and reduce the amount of natural resources used for road construction. The obtained result reveal that the use of nanomodified asphalt mixtures improves the mechanical properties, resistance to fatigue and aging compared to the traditional fragile asphalt mixtures allowing pavement section optimization.