

Effect of new type of synthetic waxes on reduced production and compaction temperature of asphalt mixture with reclaimed asphalt

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Abstract. Lower mixing and paving temperatures of asphalt mixtures, which are an important issue in recent years, with respect to increased energy demand of civil engineering structures during their processing, allow reduction of this demand and result in minimized greenhouse gas production. In present time, there are many possibilities how to achieve reduction of production temperature during the mixing and paving of an asphalt mixture. The existing solutions distinguish in target operating temperature behaviour which has to be achieved in terms of good workability. This paper is focused on technical solutions based on use of new types of selected synthetic and bio-based waxes. In case of bio-based additive sugar cane wax was used, which is free of paraffins and is reclaimed as waste product during processing of sugar cane. The used waxes are added to bituminous binder in form of free-flowing granules or fine-grained powder. Synthetic waxes are represented by new series of Fischer-Tropsch wax in form of fine granules as well as by polyethylene waxes in form of fine-grained powder or granules. Those waxes were used to modify a standard paving grade bitumen dosed into asphalt mixture of AC_{surf} type containing up to 30 % of reclaimed asphalt (RA).