

FIRST TRIAL TO DESIGN UP TO 50% RECYCLED HOT MIX ASPHALT IN LATVIA

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ABSTRACT

Due to increasing cost of asphalt binder, significant economic savings can be realized using high content of reclaimed asphalt pavement (RAP) in the production of new hot mix asphalt (HMA). Moreover, this is an environmentally friendly alternative as it reduces the need for virgin materials. It has to be noted that in Latvia RAP is rarely used in production of HMA and this valuable material is mostly degraded for use in lower value applications. Three mixtures were designed, which were the combination of two different RAP sources and local dolomite aggregates. The RAP binder had significantly aged having penetration of around 38mm, softening point of 56°C and Fraass temperature of -10°C. RAP was added at rates 30% and 50% for each RAP source. A softer binder grade (70/100 versus traditional 50/70) was added to compensate for the aged RAP binder. Hamburg wheel tracking test results demonstrated that all mixtures have high rutting resistance and fatigue test results using four point bending beam were similar to those of virgin mixture. This demonstrated that mixtures with high RAP content can be successfully designed to meet the local volumetric and performance-specification requirements.