

ASPHALT BINDER REJUVENATION FOR RECYCLING ROAD MATERIALS

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ABSTRACT

Including Reclaimed Asphalt Pavement (RAP) material into asphalt mixes is common practice in these days for several reasons: the adoption of recycling-sustainable thinking, cost reduction of mix and plant-related processes, great availability. Asphalt companies generally include different percentages of RAP although various mechanical performance can be achieved depending on the methodology, mixing time and temperature, overall amount included into the mix, and possible inclusion of specific additives. Rejuvenators are capable of reducing asphalt binder's aging and restoring the initial rheological behavior; the degree of blending between oxidized and virgin binder is also improved and the overall mechanical performance of the mixture is enhanced.

The present research evaluated two additives and their rejuvenation effects into rheology, chemical and physical characteristics of RAP binder. Amino-based surfactants and a complex mixture of vegetable oils with surfactants were used in the study at two dosages and for several aging conditionings.

Results showed that asphalt rejuvenation provides substantial advantages for improving durability of recycled mixes containing RAP although their dosage should be carefully calibrated depending on their chemical characterization.

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