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# Suitability of Rejuvenator Addition Method for Hot Mix Asphalt Recycling

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## Abstract

In India, recycling of the reclaimed asphalt pavement (RAP) material has increased noticeably during the last decade. Several issues like active RAP binder in the RAP material are yet to be resolved. Moreover, the method of rejuvenator addition in the hot

recycled mix is an open topic to debate. In the hot in-place and hot in-plant recycling processes, a rejuvenator is added to the RAP material. Also, some hot in-plant units/batch plants add a rejuvenator in the bitumen tank, which (soft binder) is later mixed with RAP and virgin aggregates in the pug mill mixer. In the present study, the suitability of the rejuvenator addition method has been evaluated through an experimental study. The two mixing methods were analyzed. In the first method (*soft binder*), the rejuvenator was blended with the base binder and mixed with the virgin aggregates and the RAP material. In the second method (*rejuvenated RAP*), the rejuvenator was directly added to the warm RAP material and conditioned. Then, the rejuvenated RAP was mixed with the base binder and the virgin aggregates. The experimental campaign includes indirect tensile strength (ITS), Marshall stability (MS), tensile strength ratio (TSR), Marshall quotient (MQ), and an analysis of the volumetric parameters, viz., percent air voids (Va, %), voids in mineral aggregates (VMA), etc. The results indicated that the MS, ITS, and TSR have improved by shifting to the *rejuvenated RAP* method from the *soft blend* method. As statistically proved, it can be concluded that the *rejuvenated RAP* method is better than the soft binder method.

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