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Original research paper

Ageing and performance of warm mix asphalt pavements

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Highlights

- For the investigation and simulation of the long term ageing behaviour of different energy reduced pavement mixtures, a special laboratory ageing protocol with different heating and watering cycles was developed.
- The rutting behaviour revealed quite controversial results with most of the energy reduce pavements showing an increase in rut depth.
- Fatigue resistance of all aged energy reduced mixtures compared to unaged mixtures improved significantly resulting in an increase of fatigue life for the aged mixtures as expected due to increasing binder stiffness.

Abstract

This paper presents results from investigating the ageing behaviour and performance of different warm mix asphalt (WMA) pavement mixtures. The mixtures were either prepared in the laboratory or taken directly from mixing plant. The study compared the rutting and fatigue behaviours of unaged material in comparison to long term aged material. In order