



## Production, Application and Properties of Bitumen (2nd Edition)

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### Message from the Guest Editor

Bitumen is one of the oldest binders used in road construction. The production of refined bitumen from heavy crude oil has surpassed the use of natural bitumen. This has led to new solutions in binder design. These include modifications of its properties with the addition of natural bitumen or the use of various chemical compounds, predominantly polymers, for improved viscoelastic performance. Cold in-place recycling represented a step toward the wider use of bitumen emulsion. However, the breakthrough in the development of bitumen technology was the implementation of low-temperature bituminous paving mixtures. Sustainable, eco-friendly warm mix asphalt (WMA) and half-warm mix asphalt (HWMA) technologies use synthetic waxes or surface-active agents (SAA) to lower bitumen viscosity. Water-foamed bitumen is the most recent innovative technique used in low-temperature mixtures. Systematic bitumen research is crucial for predicting bitumen characteristics and their effect on the performance of paving mixtures in pavement structures. This research, together with new laboratory testing technology and increased diagnostic requirements, will ensure the longer service life of pavements.





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## Message from the Editor-in-Chief

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