Special Issue

Production, Application and Properties of Bitumen

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) for lowering 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. The research, together with new laboratory testing technology and increased diagnostic requirements, will ensure the longer service life of pavements.

Guest Editor

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Deadline for manuscript submissions

closed (20 August 2023)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/40837

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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