Special Issue

Effect of Additives and Binders on Asphalt Pavement Properties

Message from the Guest Editor

The inescapable rise in road traffic and unpredictable climate-related factors is forcing the emergence of new material solutions in road engineering. More than 40% of pavement properties are affected by the bituminous binders used. Distilled bitumen is usually unable to meet the challenges of present trends for highly durable road structure designs. For this reason, researchers place emphasis on the modification of bitumen rheological characteristics using polymers, bitumen temperature-reducing additives, or those that increase bitumen storage stability. Stable bitumen modification requires a multitude of measurements and varied analytical methods that take into account a number of constant and random factors. Modern analytical tools used for this purpose include the design of experiments or neural networks. The effects of modern additives on modified bitumen are assessed based on asphalt mix properties, and the assessment must correlate with applicable requirements. Since sustainable road construction requirements ensure the optimized use of natural resources, the knowledge and practices concerning the use of waste-derived materials as modifiers and additives are in high demand.

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Deadline for manuscript submissions

closed (20 November 2023)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/127139

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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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