



Effect of Additives and Binders on Asphalt Pavement Properties

Guest Editor:

Prof. Dr. Grzegorz Mazurek

Faculty of Civil Engineering and
Architecture, Kielce University of
Technology, 25-314 Kielce,
Poland

Deadline for manuscript
submissions:

closed (20 November 2023)

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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Editor-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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