Alternative modifications of bituminous binders for mastic asphalt mixtures

Jakub Šedina[1], **Jan Valentin**[1] **and Lucie Benešová**[1]

[1]Faculty of Civil Engineering, Czech Technical University in Prague,
Thakurova 7/2077, 166 29 Prague 6 – Dejvice, Czech Republic

E-mail: sedinjak@fsv.cvut.cz

Abstract. This paper focuses on potential benefits of alternative bituminous binders for mastic asphalt mixtures, which were modified by new type of low viscosity additives or activated rubber powder. Paper presents results of laboratory investigation on mixtures with standard bituminous paving grade bitumen 20/30 and mixtures with modified bituminous binders. The reference bitumen 20/30 was modified by *micromilled* activated rubber powder, by a new generation of synthetic waxes (WE-CM20, WE-BM), or by the combination of synthetic wax and *micromilled* rubber powder. Comparison of different mastic asphalt mixtures was based on laboratory testing (indentation test, compressive strength test, bending (tensile) strength test, stiffness modulus test and cyclic compression test). Possible uses of these applications is for example in pavement structures for bridge decks, or for effective sealing of expansion joints on bridges. Mastic asphalt characteristics are compared with selected characteristics of used bituminous binders (complex shear modulus, rotational viscosity, etc.).