# The road surface as a source of particulate matter

**Daša Fullová[1], Dušan Jandačka[1], Daniela Ďurčanská[1], Adriana Eštoková[2] and Jitka Hegrová[3]**

[1]University of Žilina, Faculty of Civil Engineering, Department of Highway Engineering, Univerzitná 8215/1, 010 26 Žilina, Slovakia
[2]Technical University of Kosice, Faculty of Civil Engineering, Institute of Environmental Engineering, Vysokoškolská 4, 042 00 Košice, Slovakia
[3] Transport Research Centre, Líšeňská 33a, 636 00 Brno, Czech Republic

E-mail: dasa.fullova@fstav.uniza.sk

**Abstract**. Traffic volume is still increasing and has unpleasant impact on the environment and longevity of the pavements. It is also associated with increase in emissions of particulate matter. Slovakia has built up the major part of roads with asphalt surface. Therefore, the research presented in this contribution deals with abrasion of bituminous wearing courses of pavements. The asphalt mixtures of wearing courses are compared in terms of released particulate matter. The samples of asphalt mixtures are abraded in wheel tracking machine DYNA-TRACK. The particulate matter measurements were performed in the laboratory conditions. The experimental laboratory measurements make it possible to sample particulates without contamination from exhaust emissions, abraded particles from vehicles, resuspension of road dust and climate affects. The contribution presents results of measured mass concentrations, chemical analyses of asphalt mixture materials and chemical analyses of particulate matter. The rutted asphalt samples are compared in terms of particulate matter mass concentrations and chemical composition. The contribution presents results of measurements on six trial samples of asphalt mixtures with different composition. The concentrations of metals are subjected to the multivariate statistical analysis (factor analysis) for the identification of sources of particulate matter (bituminous binder, aggregates).