

Utilisation of metallurgical by-products in road construction in the Czech Republic

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Abstract. Metallurgical by-products, primarily blast furnace slag and steel slag, have ranked among important alternative sources of fill as well as of material for the structural layers in highways. Main hazards of metallurgical by-products are closely connected to their chemical and mineralogical composition and they can be resulted in volume changes. Fears from possible deformations similar to the D47 motorway meant that metallurgical by-products were excluded from several public tenders of road construction. Comparison of blast furnace slag, steel slag and other metallurgical by products parameters allow us to define the most hazardous material as steelworks waste. Linear swelling of steelwork waste achieves more than 40% at 75°C and swelling pressure was higher than 1.5 MPa. Compositional heterogeneity of steelworks waste makes it difficult to establish the long-term behaviour of this material. At the present time we cannot ascertain which maximum values can be reached by deformation and what are the swelling pressures acting on the material while the volume changes are in progress.