



Enrichment of Fine Mica Originating From Rock Aggregate Production and its Influence on the Mechanical Properties of Bituminous Mixtures

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Analyses of mica-bearing crushed granitoid rocks revealed a significant enrichment of free mica in the fine fraction. Qualitative tests of bituminous mixtures with an increasing content of free mica in the fine fraction suggested a considerable deterioration of the mechanical properties of the asphalt mass. The negative influence of fine mica on the mechanical properties of the asphalt mixtures was most likely caused by the ability of mica to adsorb bitumen and to create zones of weakness. This phenomenon seemed to be linked to a preferred orientation (foliation) of the mica particles connected to the compaction of asphalt masses during the construction of the surface course. The threshold content where the fine mica negatively influenced the quality of the bituminous mixtures was estimated to be 30 – 35 volume percent.

Keywords: granites, free mica particles, quality of bituminous mixtures, mechanical tests of asphalt mixtures, foliation.