PERFORMANCE EVALUATION OF HMAC ASPHALT CONCRETE MIXES

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ABSTRACT
Dolomite and gravel are the most available sedimentary rocks in the territory of Latvia. Utilization of local materials is one of the main aims of the road construction. However, according to Latvian Road Specifications dolomite and gravel cannot be used for average and high intensity roads because of its low quality (mainly, LA index). Therefore, mostly imported magmatic rocks (granite, diabase, gabbro, basalt) or imported dolomite are used which makes asphalt expensive. Hence there is a need to adapt High Modulus Asphalt Concrete (HMAC) technical solutions which allow application of local materials in long-life road pavements. The aim of the research is to develop a high performance asphalt concrete for base and binder courses using only locally available aggregates. The design of the asphalt includes a combination of empirical and performance based tests. Stiffness, resistance to rutting, fatigue and thermal cracking tests were carried out. High performance AC 16 base asphalt concrete was created using local dolomite and gravel aggregate with polymer modified (PMB 25/55-60) and hard grade (B20/30) bitumen. The paper also presents results of tests with the same type of asphalt concrete mixture, but using conventional bitumen (B70/100). The performance tests carried out showed that hard grade (B20/30) or polymer modified (PMB 25/55-60) bitumen with dolomite or gravel aggregates may be applied in High Modulus Asphalt Concrete for base and binder course