

## AN ASPHALT CONCRETE APPLICATION FOR HIGH-SPEED RAILWAY IN CHINA

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### *ABSTRACT*

Asphalt concrete is a traditional material used for constructing highway and airfield pavements with advantages of good bearing capacity, waterproof, shock absorption, and noise reduction. With the rapid development of high-speed railways in China, the load-bearing infrastructure to support high-speed rail tracks faces challenges in drainage, settlement and structural fatigue. In recent years, asphalt concrete is being used for constructing the railway infrastructure of Chinese high-speed railway. The study in this paper focuses on the material composition of Railway Asphalt Concrete (RAC) based on the laboratory experiments. The RAC material and performance parameters were measured by using the modified traditional tests of highway asphalt pavements. Based on the material test results, the air voids content of the material RAC-25 used for railway infrastructure should be controlled from 1% to 3%. The optimal asphalt content should be obtained suitably from parameters tests, such as volumetric parameter, Marshall Stability, TSR, coefficient of permeability and flexural tensile strength. The recommended asphalt content should be less than 5.8%. The load-bearing infrastructure with the RAC-25 partly replaces the surface layer of subgrade, which is a stabilized layer on the top of subgrade, to provide a better performance, making it a suitable type of structure for high-speed railway infrastructure.