

Mechanical Analysis of Flexible Base Durable Asphalt Pavement Structure

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Abstract: In order to provide basis for the design of flexible base durable asphalt pavement structure. The influence of all kinds of parameter combination on different control indicators was analyzed by combining the extremum of each structure-layer parameters, such as different asphalt aggregate thickness, different layer thickness under the same total thickness, and different elasticity modulus. Regression analysis was carried out based on the data in database by the using of Minitabdata analysis software. The mechanical response model was obtained. And the influence that each structure-layer parameters acting on the mechanics index of pavement structure were measured. The research shows that the total thickness of asphalt layer is the key influence parameter of tensile strain indicator of asphalt layer bottom. The flexible base layer thickness is the main influence parameters of top soil base compression strain index. The flexible subbase modulus parameter has influence on every index obviously. Soil base modulus is the main influence parameter of surfacing deflection and the top soil base compressive strain index.

Key words: flexible base; durable pavement; asphalt layer bottom tensile stress; top soil base compression strain; mechanical response model