

BITUMINOUS MIXTURES APPLICATION IN RAILWAY SUB-BALLAST LAYER

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ABSTRACT

The increasing of loads and traffic speed of the railways requires a better infrastructure, in order to enable the operation in optimal condition and less traffic interruptions due to maintenance actions. At the same time, the natural resources for the material generally used in the sub-ballast layer, namely the granite are limited, taking into account that the requirements in terms of stiffness and wearing resistance are very high.

The bituminous mixtures can represent a good alternative to this traditional material. They enable the decreasing of sub-ballast thickness, better impermeability, better behaviour under the lorry traffic during construction and an improvement of the infrastructure stiffness and its continuity along the railway that results in less maintenance works.

In this study two different structures are compared, one with granular material and the other one with bituminous material as sub-ballast layers. Falling Weight Deflectometer (FWD) tests were performed in order to establish the structural model. The back-calculation was made using both linear elastic and finite difference method. The results obtained so far are presented in this paper, together with some proposals for future developments.

KEY WORDS: Bituminous mixture, sub-ballast, FWD, structural modelling.