

Abstract Details

Title: Studies on Ageing Effect in Bituminous Courses

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Abstract: Bitumen ageing is one of the principal factors causing the deterioration of bituminous pavement (Xiao and Isacson, 2001). Important ageing related modes of failure are traffic, thermally induced cracking and ravelling Binder ageing which is considered as the main reason for durability in bituminous pavement. The ageing of binder has an influence on how long is in service a road coating. Based on hardening and stiffening of bitumen material ageing are of two types – (1) Short Term Ageing and (2) Long Term Ageing. The principal cause of bitumen ageing in service is the atmospheric oxidation of certain molecules with the formation of highly polar and strongly interacting functional groups containing oxygen. With the increasing demands of traffic on road building materials in recent years binders with improved performance relative to normal penetration grade bitumen are needed, that's why more and more modified bitumen is used in road pavement. In order to predict long term ageing successfully in the laboratory, ageing test should be done at temperature closer to that of the pavement because high temperature results in high volatile loss and will change the nature of oxygen reaction with the bitumen components. Field ageing can be accelerated in the laboratory by using increased temperature, decreased bitumen film thickness, increased oxygen pressure, or combinations of these factors.

Keywords: Ageing Effect, Thin Film Oven Test, Bituminous Courses.