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Rutting Behavior

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Predicting the Impact of Temperature and Stress on the Glasphalt Mixtures Rutting Behavior

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Abstract:

In recent years the use of additives in asphalt mixtures has increased to strengthen them against dynamic loads considerably. New researches have shown that the optimal use of waste glass in hot mix asphalt mixtures increases its dynamic characteristics dramatically. The purpose of this study is to predict the impact of temperature and stress on the glasphalt mixture rutting behavior. In order to achieve the objectives of this study, ABAQUS software has been used. To achieve this goal, the results of repeated load axial test were used to model the rutting behavior of asphalt mixtures in wheel track test. The results of this study show that the presented models in this study are well able to predict the rutting of glasphalt mixtures at different temperatures and stresses. Also the results of models show that the waste glass powder is able to improve the performance of asphalt mixtures against permanent deformation significantly.

Keywords: Glasphalt, rutting, ABAQUS, wheel track test, finite element modeling.

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