

## COMPARISON OF RESISTANCE OF ASPHALTS TO PERMANENT DEFORMATION DETERMINED ACCORDING TO EMPIRICAL AND FUNDAMENTAL TEST

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### *ABSTRACT*

The resistance of asphalts against permanent deformation is one of important requirements that have to be verified in the design process of asphalt. In the case of asphalt concrete the European standard allows empirical or fundamental approach for testing of permanent deformation resistance. The presented study investigates characteristics of resistance to rutting of asphalt concrete mixtures determined by cyclic compression test and wheel tracking test.

Influence of type and content of binder on creep rate value was established from results of triaxial test. Moreover results of triaxial test and wheel tracking test on identical mixtures were compared to assess if any relationship exists between the results and also to determine required category of creep rate  $f_c$  for asphalt concrete that could be used in type testing.

Positive influence of polymer modified bitumen on creep rate values of AC 11 was proved but clear evidence of bitumen content influence was not observed in the common used range of bitumen contents.

Though no relationship between  $f_c$  and  $WTS_{AIR}$  was found out for applied test conditions, required category of  $f_c$  was proposed for AC 11 taking into account values determined for mixtures that fulfilled requirement on  $WTS_{AIR}$  category.

*KEY WORDS:* Bitumen, asphalt mixture, triaxial test, creep rate, wheel tracking