

Effects of Preparation Conditions on the Properties of Crumb Rubber Modified Binder

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Abstract : Various types of additives are used frequently in order to improve the rheological and mechanical properties of bituminous mixtures. Small devices instead of full scale machines are used for bitumen modification in the laboratory. These laboratory scale devices vary in terms of their properties such as mixing rate, mixing blade and the amount of binder. In this study, the effect of mixing rate and time during the bitumen modification processes on conventional and rheological properties of pure and crumb rubber modified binder were investigated. Penetration, softening point, rotational viscosity (RV) and dynamic shear rheometer (DSR) tests were applied to pure and CR modified bitumen. It was concluded that the penetration and softening point test did not show the efficiency of CR obtained by different mixing conditions. Besides, oxidation that occurred during the preparation processes plays a great part in the improvement effects of the modified binder.

Keywords : bitumen, crumb rubber, modification, rheological properties

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