PROPERTIES OF EXTRACTED BINDER FROM RECLAIMED ASPHALT PAVEMENT

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ABSTRACT
This paper presents results on rheological and mechanical properties of binder, which contains asphalt extracted from reclaimed asphalt pavement (RAP). Two base asphalt binders typically used in Rhode Island were blended with different amounts of RAP binders obtained. The Dynamic Shear Rheometer (DSR) was used to evaluate the blended binders at high and intermediate temperatures. A good linear relationship between log-log rheological properties and the RAP binder amount was obtained. It was found that the addition of RAP binder generally increases the resistance against rutting. It was observed that an increase in RAP binder content causes an increase in G*sinδ. Therefore, the Superpave criteria of G*sinδ may dictate the maximum amount of RAP addition not to have fatigue cracking. Results of the Bending Beam Rheometer (BBR) test indicated that the creep stiffness increased and the m-value as the RAP amount increased. It appears that the addition of RAP did not enhance the binder's resistance characteristic against low temperature cracking. It was observed that the compressive strength and the stiffness were increased and the ductility was reduced as the amount of RAP binder increased. Experiment results at 22^{o}C indicated an increasing trend of fracture toughness as a function of RAP binder content. The dynamic flow stress was found to increase with RAP binder content. The dynamic flow stress was not affected by the amount of RAP binder at low temperature.

KEY WORDS: Reclaimed Asphalt Pavement, Binder, Rheological Properties