

Deformation Behavior of Virgin and Polypropylene Modified Bituminous Mixture

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Abstract : This paper present a part of research conducted to investigate the creep behavior of bituminous concrete mixture prepared with well graded using the dynamic creep test. The samples were prepared from unmodified control mix and Polypropylene modified bituminous mix. Unmodified or control mix was prepared with 80/100 grade bitumen while polypropylene modified mix was prepared using polypropylene PP polymer as modifier, blended with 80/100 Pen bitumen. The concentration of polymer in the blend was kept at 1%, 2%, and 3% by weight of bitumen content. For Dynamic Creep Test, Marshall Specimen were prepared at optimum bitumen content and then tested using IPC Global Universal Testing Machine (UTM), in order to investigate the creep stiffness of both modified and control mix. From the results obtained it was found that 1% and 2% PP modified bituminous mix offer better results in comparison to control and 3% PP modified mix samples. The results verify all the findings of empirical and viscosity test results which indicates that polymer modification induces stiffening effect in the binder. Enhanced viscous component of the binder was considered responsible for this change which eventually enhances the mechanical strength of the modified bituminous mixes.

Keywords : polymer modified bitumen, stiffness, creep, viscosity

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