

عنوان مقاله:

Influence of Setting Time of Tack Coat on Bond Strength of Bituminous Paving Layers

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خلاصه مقاله:

Poor adhesion between two successive bituminous layers causes adverse effects on the structural strength of the pavement and develops a numbers of premature failure. To improve the adhesion, it is a general practice to apply a tack coat over an existing or newly constructed bituminous surface before laying another bituminous layer. The main objective of this study is to explore the influence of setting time of tack coat material on the bond strength of abiturminous layer combination. The influence of tack coat type, application rate and test temperature on the interlayer bond strength (ILBS) have also been studied. Two types of bituminous emulsions (CRS 1 and CMS 2) and two types of bituminous binders (VG 10 and VG 30) have been selected as tack coat for a typical bituminous layer combination. When no tack coat is used, the influence of time interval between laying of the two successive bituminous layers has also been studied. A specially fabricated attachment (named interlayer bond strength testing device) has been used by fitting it to the loading frame of a Marshall testing apparatus. It is observed that the ILBS depends on setting time, test temperature, tack coat type and application rate of a tack coat. Out of the four tack coat materials, CMS 2 offers the maximum ILBS with minimum quantity requirements in the bituminous layer combination considered. The highest ILBS is observed when no tack coat is used, however the upper layer is to be laid and compacted immediately after the lower layer.

کلمات کلیدی:

Interlayer bond strength, emulsion, interlayer bond strength testing device, Marshall testing apparatus

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