

THE EFFECTS OF ANTI-STRIPPING AGENTS IN REDUCING MOISTURE SUSCEPTIBILITY OF FOAM-WARM MIXES

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ABSTRACT

This research was conducted in order to evaluate the moisture susceptibility of WMA foam mixes, produced by applying two different technologies. With the first technology, warm mixes were prepared, transforming the total bitumen of the mix into foam bitumen. With the second technology, mixes were prepared using two different bitumens (i.e. a soft and a hard bitumen). With this latter technology, the soft bitumen is first added to coarse aggregate particles. Then the hard bitumen is transformed into foam while added immediately to the bitumen covered aggregates and the rest of the materials.

Indirect tensile strength (ITS) test was performed and moisture susceptibilities of WMA mixes were then evaluated, determining the Tensile Strength Ratio (TSR). The moisture susceptibilities of both WMA type samples were greater than the specification limits for HMA mixes. In order to overcome this problem, two anti-stripping agents, namely; hydrated lime powder and a liquid anti-stripping agent, were used. ITS testing results indicated that the addition of the two anti-stripping agents reduced the moisture susceptibility of WMA mixes appreciably. It was observed that with the first method, the liquid additive was slightly more effective than hydrated lime while with the second method; hydrated lime filler was definitely more effective.

KEY WORDS: WMA foam, moisture susceptibility, TSR, anti-stripping agent.