

Optimizing PelletPAVE Rubberized Asphalt MIX Design Using Gyratory Compaction and Volumetrics

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Abstract : In comparison to hot mix asphalt (HMAs) composed of non-modified bitumens, the superior performance of rubberized HMAs is very well documented, and numerous trials in the USA and elsewhere have demonstrated excellent performance in terms of creep, fatigue, and durability. In this investigation, rubberized HMA technology was examined to address the most critical forms of pavement distresses in the State of Kuwait, namely, high-temperature rutting and moisture-induced raveling. Pelletpave additive was selected as the preferred technology since it offered a convenient method of directly modifying the exiting local HMA recipe without having to polymer modify the bitumen. Experimental work using various Pelletpave contents was carried out at Kuwait Institute for Scientific Research (KISR) to design an optimum rubberized HMA formulation prior to conducting a pilot-scale road trial. With the aid of a gyratory compactor, the compaction and volumetric properties of HMAs containing 2.5% and 3.0% Pelletpave additive were investigated at a range of bitumen contents, all by mass of total mix.

Keywords : modified bitumen, rubberized hot mix asphalt, gyratory compaction, volumetric properties

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