INFLUENCE OF COARSE AGGREGATE PARTICLE SHAPE AND TEXTURE ON CHARACTERISTICS OF HOT-MIX ASPHALT

By

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Abstract

Mineral Aggregate represents approximately 90 to 95 percent from the total weight of hot-mix asphalt (HMA) and 70 to 85 percent of the total volume. For this reason, the characteristics and in turn the performance of HMA is heavily affected by the properties of aggregate blend. The angularity, shape and surface texture of the aggregate particles have a significant effect on the characteristics of HMA mixtures. Rough and angular aggregates have been proved to produce higher-quality HMA pavement than smooth, round aggregates. The focus of this research is to investigate and evaluate the effect of coarse aggregate particle shape and texture selected from different aggregate sources in Libya on the properties of HMA mixtures. Particle shape and texture were evaluated in this study using fractured particles test (ASTM D 5821), flat and/or elongated particles (ASTM D 4791) and particle index (ASTM D 3398). The HMA mixtures were evaluated using stability-flow test (ASTM D 1559) and unit weight and voids in mixtures (ASTM C 29).