PHYSICAL AND MECHANICAL PROPERTIES OF WARM MIX ASPHALT COMPOSED OF RECYCLED CONCRETE AGGREGATES

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ABSTRACT
The use of recycled materials and warm mixtures technologies are object of intense research concerning bituminous mixtures in order to promote innovative paving techniques with more environmental sustainability in a circular economy model. The paper intends to present a study on the physical and mechanical properties of a warm mix asphalt (WMA) composed of recycled concrete aggregates (RCA) and a binder specially design by the supplier for WMA applications. Asphalt concrete AC20 base 35/50 was used in this study, composed of 60 % of RCD and 4.5 % of modified binder. Laboratory tests were related to affinity aggregate-bitumen, Marshall properties, moisture sensitivity, stiffness, permanent deformation and fatigue resistance. Comparing with equivalent WMA, modified with chemical and organic additives, and hot mix asphalt (HMA), the results confirmed, in general, an adequate physical and mechanical performance of this type of WMA for base pavement layers application.