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Fracture resistance of asphalt concrete modified with crumb rubber at low temperatures

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ABSTRACT

The main objective of this study is to obtain fracture toughness of asphalt concrete modified by Crumb Rubber (CR) and Sasobit at low temperatures. First, Bending Beam Rheometer (BBR) test was performed on unmodified binder (binder 60/70), binder 60/70+3% Sasobit and 20%CR +3% Sasobit modified asphalt binder to find how each modifier affect asphalt binder stiffness and relaxation rate at low temperatures. Mixed mode I/II fracture tests were conducted by cracked Semi-Circular Bending (SCB) specimens and the critical stress intensity factors were calculated for pure mode I, mixed mode I/II and pure mode II conditions. Results of BBR tests indicated that 20%CR +3% Sasobit reduces stiffness and the m-value increase at low temperatures. As a result, 20%CR+3% Sasobit has positive effect on low

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