COMPARISON OF UNIAXIAL TENSION-COMPRESSION FATIGUE TEST RESULTS WITH SCB TEST PERFORMANCE INDICATORS DEVELOPED FOR PERFORMANCE-BASED MIX DESIGN PROCEDURE

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ABSTRACT
The semi-circular bending (SCB) test has been receiving wide acceptance in the United States as a practical approach for characterizing cracking resistance of asphalt mixtures. It is also being explored by various roadway agencies as part of performance related mix-design specifications. Even though the results of the SCB test seem encouraging, they have been interpreted in different manners by various researchers. As a result, several performance indicators have been proposed to describe the behavior of the mixtures tested. The objective of this study was to compare SCB-based indicators against the results obtained from a uniaxial tension-compression fatigue test using the viscoelastic continuum damage (VECD) approach. Three dense graded asphalt mixtures were tested at different temperatures under monotonic loading (AASHTO TP 105) and uniaxial tension-compression fatigue test. VECD-based predicted number of cycles to failure (N_f) were then compared to various SCB performance indicators.