Viscoelastic characterization of asphalt concrete in diametral tension-compression - DTU Orbit (29/12/2018)

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This work focuses on improving the linear viscoelastic characterization of asphalt concrete materials with a standard indirect tension setup. Three main aspects distinguish this investigation from typical efforts. First, the applied diametral force history consisted of load-unload-rest sequences; this was done to enable separation between recoverable and irrecoverable deformation components. Second, viscoelastic properties were essentially calibrated against the recoverable deformation part to guarantee agreement with the sought constitutive theory; response during rest intervals was modeled for this purpose, assuming inactivity of the irrecoverable deformation part. Third, diametral forces were alternated between tension and compression; this was done to restrain the accumulation of irrecoverable deformation and to widen the calibration domain. Detailed step-by-step guidelines are included and applied to clarify the approach. For pavement engineering purposes, the overall scheme is deemed an improvement over common or existing methods.

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