

FATIGUE CHARACTERIZATION OF MODIFIED ASPHALT CONCRETES BY MEANS OF DISSIPATED ENERGY APPROACHES

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ABSTRACT

The results are discussed of a laboratory investigation on the fatigue response of asphalt concretes, evaluated by the four-point bending test. The experimental trial was performed on bituminous mixtures for base courses, made with both conventional and polymer modified bitumen. The mix design was based on gyratory tests and indirect tensile tests. The fatigue behaviour was evaluated for both stress and strain control mode, by means of the conventional approach, based on the reduction in the initial stiffness modulus, as well as using a dissipated energy method. The main goal of the research was to compare the fatigue resistance of the mixes considered, in light of the different approaches adopted in the study. Between the different approaches used for the fatigue data analysis, it has been verified a qualitative consistency in the mixtures ranking, independently from the control mode, with a higher fatigue resistance recorded for the polymer modified mixtures.