

عنوان مقاله:

MONITORING DISSIPATED ENERGY THROUGH THE FATIGUE PROCESS OF ASPHALT CONCRETE

محل انتشار:

مجله تحقیقات کاربردی، دوره 2، شماره 6 (سال: 1395)

تعداد صفحات اصل مقاله: 8

نویسنده:

Saad Issa Sarsam - Department of Civil Engineering, College of Engineering, University of Baghdad, Iraq

خلاصه مقاله:

Fatigue cracking is a serious distress associated with flexible pavements, it reduces the service life of the pavement. Fatigue damage of asphalt concrete is the amount of energy dissipated in the specimen during testing. Fatigue could be minimized by controlling the dissipated energy; which can be used to explain the decrease in mechanical properties, such as flexural stiffness. During dynamic-load repetition, amount of energy is carried into the material. Part of this energy is stored in the material and dissipated when the load is released. In this research, an investigation was made to monitor the changes in dissipated energy through the fatigue resistance process of asphalt pavement. Repeated four-point flexure bending beam test in controlled strain mode has been implemented. Asphalt concrete mixtures were prepared using different percentages of asphalt cement. Asphalt concrete slab samples of (300x 400x 60) mm were prepared using roller compaction, beam specimens of (400x 50x 60) mm were cut from the slab samples. Beam specimens were divided into two groups, the first group was directly tested for fatigue life using Nottingham four point bending beam device under the influence of three levels of micro strain (750, 400 and 250), at 5, 20, and 30 °C, while the second group was subjected to moisture damage impact before testing for fatigue life. During testing, dissipated energy per cycle was monitored through the changes in mix behavior and damage accumulation. The impact of asphalt content, strain level, and testing temperature on dissipated energy was discussed and compared.

کلمات کلیدی:

Asphalt concrete, dissipated energy, moisture damage, fatigue

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/541425>

