ABSTRACT

This is an investigation study aimed at assessing the suitability of adding cement grout into the asphalt mix to modify the strength properties of the plain asphalt mixture. The investigation used compression test to characterize the deformation of asphalt concrete. The objectives of the study included, to investigate the effect of cement grout content on permanent deformation of asphalt mix, to investigate the effects of temperature on the flow of cement grouted asphalt concrete and to investigate the temperature effects on the stability of cement grouted asphalt concrete. Factors such as temperature variation and load application unto the pavement were investigated so as to evaluate how they influence the performance of cement grouted asphalt pavement. Increase in temperature was found to accelerate the rate of permanent deformation. Asphalt mixture with cement grout was found to have increased resistance to permanent deformation as compared to the plain asphalt mixture. Experiments were conducted on asphalt cylindrical blocks with different concentration of cement grout. Blocks with zero cement grout content and others have up to a maximum of 6% were prepared and then loaded on compression test machine. Blocks with cement grout supported higher loads before failure as compared to those without. At low temperatures of 10°C blocks with cement grout recorded high strength as compared to the plain asphalt concrete blocks. At high temperature asphalt blocks with cement grout content supported more load as compared to the plain asphalt concrete blocks