Abstract

This study investigated the crack healing ability of aged and unaged AC-13 basalt asphalt mixtures using five healing agents. Notched semicircular asphalt mixtures were cracked and healed using the healing agents and the recovered critical load at fracture was adopted as a healing indicator. Crack healing was found to be dependent on the type of healing agent, healing time and aging of mixture. A maximum healing up to 73% was obtained after 8 days of uninterrupted healing. Multiple fracturing-rehealing of the healed mixture didn't significantly affect the healing index (HI) of the successive cycles. The re-healing performance was sensitive to the drying rate of healing agents, and a high drying rate reduced the re-healing performance. The first day of healing had the highest contribution to the ultimate healing potential, and further increase in the healing duration resulted in a steady increase in healing index. The high healing performance indicated that carefully selected healing agents have the potential to heal cracks in asphalt pavements.