

Effect of ageing of bitumen on performance of asphalt pavements in tropical environments

Abstract:

Experience with bituminous surfaced roads in Kenya indicates a deterioration of asphaltic surfacings is manifested mainly by cracking early at their service-life. This paper reviews some previous works and describes the investigations made into the effect of hardening of bitumen on performance of both light bituminous surfacings and asphaltic concrete pavements. The typical failure pattern is that environmentally induced hardening of binder in the surfacings results in a brittle skin which is prone to cracking under stresses of traffic and temperature. Water finds its way through such cracks into the road pavement structure and weakens it. It was found that the effect of binder hardening on performance of the thin surface dressings is dependent on the volume of traffic and the quality of surfacing aggregates. Light surfacings typically deteriorate by abrasion and peel-off due to stripping. On the other hand, potholes appear after deep and intensive cracking on asphaltic concrete surfacings. (A) For the covering abstract of the conference see IRRD 873950