

Study about functional damage of pavement

[Point]

As a result of heavy traffic caused by larger size of vehicles and others, cracks (wheel cracks) from the surface to the lower side in a longitudinal direction near the running position of wheels have been an issue. In this study, literature research, national actual condition survey, model analysis that used multilayer elastic theory, and longitudinal crack assessment method were conducted in order to clarify mechanism of cracks, review design method that corresponded to longitudinal cracks and crack control method, and develop materials and construction method for controlling cracks. As a result, the following two points were revealed.

1. Cracks do not occur as a result of influence of subgrade as well as roadbed and performance deterioration. They occur in the central part of W tires and in the marginal part of tires, as a result of influence of performance of surface layer mixture.
2. The effective materials for controlling cracks and the construction method by using such materials are the materials with less deterioration, the materials with smaller void, the materials with a large amount of asphalt that increases film thickness, and the materials with lower viscosity.

Keywords: wheel cracks, longitudinal cracks, assessment test, mechanism, control material