

# Simulasi Laboratorium Perubahan Kinerja Campuran Aspal Akibat Degradasi Agregat dan Karakteristik Aspal = Laboratory Simulation of Changes in Asphalt Mix Performance Due to Aggregate Degradation and Asphalt Characteristics

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## Abstrak

Kerusakan lapis permukaan jalan lentur umumnya disebabkan oleh beberapa faktor, seperti beban lalu lintas berlebih, terpapar cuaca ekstrim, dan minim perawatan. Faktor tersebut secara langsung memberikan dampak terhadap material lapis permukaan tersebut di mana agregat penyusunnya mengalami degradasi menjadi butiran-butiran yang lebih kecil dan aspal mengalami penuaan. Dalam penelitian ini, fenomena degradasi agregat disimulasikan dengan memvariasikan gradasi campuran aspal dan fenomena penuaan aspal yang ditandai dengan perubahan karakteristik aspal disimulasikan dengan menambahkan bitumen RAP dengan kadar tertentu ke dalam aspal minyak murni. Berdasarkan hasil uji Marshall Standard dan WTM, degradasi agregat lebih memberikan dampak terhadap volumetrik campuran aspal. Di lain sisi, perubahan karakteristik aspal memberikan pengaruh yang lebih dominan dibandingkan efek degradasi agregat di mana campuran aspal mengalami peningkatan kinerja yang ditandai dengan deformasi yang rendah dan nilai stabilitas yang tinggi.

.....Damage to flexible road surface layers is generally caused by several factors, such as excessive traffic loads, exposure to extreme weather, and lack of maintenance. These factors directly impact the surface layer material where the constituent aggregates degrade into smaller grains and the asphalt ages. In this study, the phenomenon of aggregate degradation is simulated by varying the gradation of the asphalt mixture and the phenomenon of asphalt aging characterized by changes in asphalt characteristics is simulated by adding a certain amount of RAP bitumen to virgin oil asphalt. Based on the Marshall Standard and WTM test results, aggregate degradation has more impact on the volumetric properties of the asphalt mixture. On the other hand, the change in asphalt characteristics exerted a more dominant influence than the effect of aggregate degradation where the asphalt mixture experienced improved performance characterized by low deformation and high stability.