

Kontribusi Buton natural Asphalt pada karakteristik mekanik aspal Beton dalam kondisi terendam

Husnul Fikri, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20166937&lokasi=lokal>

Abstrak

Konstruksi perkerasan jalan di Indonesia seringkali mengalami kerusakan akibat pengaruh jalan terendam. Kondisi permukaan jalan terendam diakibatkan oleh sistem drainase buruk. Kerusakan pada lapis permukaan disebabkan menurunnya kekuatan struktur campuran aspal oleh beban kendaraan dan adanya air di permukaan. Pada penelitian ini Buton Natural Asphalt (BNA) ditambahkan pada campuran Asphalt Concrete Wearing Coarse (AC-WC) yang menggunakan aspal penetrasi 60/70.

Penambahan BNA 25% terhadap aspal optimum AC-WC selanjutnya disebut ACWC Modifikasi dilakukan berbagai pengujian dalam kondisi kering dan terendam air. Analisis dilakukan untuk mengkaji karakteristik mekanik Stabilitas Marshall, Modulus Resilien dan Stabilitas Dinamis dengan menggunakan alat uji Marshall, Umata, Wheel Tracking Machine dan Scan Electronic Microscope.

AC-WC Modifikasi telah menunjukkan kinerja peningkatan nilai Stabilitas Marshall 11.35 %. Berdasarkan uji perendaman Marshall (Marshall Immersion) diperoleh Indek Kekuatan Sisa meningkat sebesar 2.71%. Modulus resilen (MR) meningkat 6.55% dalam kondisi terendam dan pada kondisi beban standar terjadi peningkatan sangat signifikan yaitu 32.59 %. Hasil uji deformasi permanen menunjukkan laju deformasi 14.44 % lebih kecil dari pada campuran aspal AC-WC dengan indeks Penetrasi 60/70.

Construction of road pavement in Indonesia are often damaged due to the influence of submerged roads. Submerged road surface conditions caused by poor drainage system. Damage to the surface layer due to decreased structural strength of asphalt concrete mixture by weight of the vehicle and the presence of water on the surface. In this study Buton Natural Asphalt (BNA) was added to the mixture Asphalt Concrete Wearing Coarse (AC-WC) using bitumen 60/70 penetration index.

BNA addition of 25% of the optimum asphalt AC- WC called AC-WC Modifications carried out various tests in dry conditions and submerget. The analysis conducted to assess the mechanical characteristics of Marshall Stability, Resilient Modulus and Dynamic Stability using Marshall test, Umata test, Wheel Tracking Machine and Scan Electronic Microscope.

AC-WC Modifications have shown performance enhancement Marshall Stability value of 11.35%. Based on the Marshall Immersion test obtained Marshall Index of Retained Strength increased by 2.71%. Resilient Modulus (MR) 6.55% increase in submerged conditions and at standard load conditions occur very significant increase of 32.59%. Permanent deformation test results showed the rate of deformation of 14.44% smaller than the asphalt mixture AC-WC with 60/70 penetration index.