

Ketahanan deformasi campuran hangat (warm mix) pada uji wheel tracking akibat perubahan suhu dengan bahan tambah BNA-R = The resistance deformation of warm mix asphalt using wheel tracking test due to temperature change by adding BNA-R

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Abstrak

Penggunaan Warm Mix Asphalt (WMA) sebagai alternatif penggunaan pada perkerasan telah dilakukan di beberapa negara. Mengurangi efek rumah kaca, pengurangan penggunaan energi dan biaya yang dikeluarkan merupakan keuntungan lain penggunaan WMA. Pengurangan suhu berkisar antara 20-40 C. Penggunaan BNA-R (Button Natural Asphalt Rubber) sebagai bahan tambah dapat memberi kontribusi peningkatan kekuatan campuran aspal hangat.

Studi penelitian ini dilakukan untuk mengetahui kontribusi BNA-R terhadap aspal dan campuran aspal hangat. Pengujian yang dilakukan adalah uji properties aspal, uji Marshall dan Marshall Immersion, serta uji Wheel Tracking siklus panjang dengan perubahan suhu.

Hasil penelitian ini mengindikasikan adanya kontribusi BNA-R terhadap campuran hangat dengan penambahan kadar terbaik sebesar 10%. Kontribusi BNA-R dapat menaikkan nilai Indeks Penetrasi sebesar 76%, menurunkan nilai penetrasi sebesar 30% dan menaikkan titik lembek sebesar 8%, serta memperbaiki sifat-sifat campuran aspal. Campuran aspal dengan BNA-R dapat menaikkan nilai stabilitas dinamis sebesar 29%.

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The use of Warm Mix Asphalt (WMA) as an alternative way in the use of pavement has been conducted in several countries. Reducing the greenhouse gas effect, energy use and costs are several other advantages in using WMA. Temperature reduction is in approximate range between 20-40 C. The use of BNA-R (Button Natural Asphalt Rubber) as an additive material which can give the contribution; such as increasing the strength of warm mix asphalt.

The study of this research is conducted to determine the contribution of BNA-R on asphalt and warm mix asphalt. This research uses the properties of asphalt, Marshall and Marshall Immersion tests, as well as the Wheel Tracking test on long cycle with temperature changes.

The results of this study indicate that there are several contributions of BNA-R to the warm mixture by adding BNA-R at 10%. Those contributions of BNA-R can increase 76% of Penetration Index value, reduce 30% of penetration value, increase 8% of softening point and also elevate the characteristics of the asphalt mixture. Moreover, the warm mix asphalt with BNA-R can increase the value of dynamic stability by 29%.