

INTISARI

Bahan campuran perkerasan jalan didominasi oleh agregat, yaitu mengandung sekitar (90-95)% agregat berdasarkan prosentase berat atau (75-85)% agregat berdasarkan prosentase volume. Salah satu syarat kekuatan yang harus dipenuhinya adalah mempunyai nilai abrasi maksimum 40%. Penggunaan agregat kasar bernilai abrasi tinggi (50%) pada campuran *Hot Rolled Sheet Wearing Course* (HRS-WC) dalam penelitian ini adalah untuk mengantisipasi apabila untuk waktu yang akan datang dirasakan sulit untuk mendapatkan agregat kasar yang bermutu baik atau bernilai abrasi maksimum 40%.

Penelitian ini dilakukan dengan menggunakan metode *Marshall*. Benda uji dibuat dengan memvariasikan kadar agregat kasar pada campuran perkerasan yaitu 44,5%, 39,0% dan 33,5%. Pembuatan benda uji dengan kadar aspal antara 6,5% sampai 8,5% dengan interval 0,5%, kemudian dilakukan dengan pengujian *marshall* dan diteruskan pembuatan benda uji *refusal density* yang akhirnya diperoleh kadar aspal optimum. Dengan kadar aspal optimum tersebut dibuat benda uji perendaman untuk mendapatkan nilai Indeks Perendaman (IP) dan benda uji *Cantabro* untuk mendapatkan tingkat keausan atau kehilangan berat benda uji selama mendapat gaya *impact*.

Hasil penelitian menunjukkan bahwa variasi prosentase agregat kasar bernilai abrasi tinggi 50,8% pada campuran perkerasan mempengaruhi kadar aspal optimumnya. Campuran HRS-WC dengan prosentase agregat kasar 44,5%, 39,0% dan 33,5% diperoleh kadar aspal optimum berturut-turut 7,5%, 7,9%, dan 8,3%. Indeks perendaman (IP) benda uji dengan prosentase agregat kasar 44,5%, 39,0%, dan 33,5% diperoleh nilai IP-nya berturut-turut sebesar 87,5%, 89,76% dan 91,20%. Untuk hasil *Cantabro test* pada 300 putaran menunjukkan keausan atau kehilangan berat benda uji dengan prosentase agregat kasar 44,5%, 39,0% dan 33,5% diperoleh nilai keausan atau kehilangan berat masing-masing sebesar 3,21%, 2,64% dan 2,25%. Dan untuk nilai stabilitas benda uji pasca *cantabro test* benda uji dengan prosentase agregat kasar 44,5%, 39,0% dan 33,5% diperoleh nilai stabilitas sisa berturut-turut sebesar 53,2%, 53,3% dan 58,7%. Secara keseluruhan hasil penelitian yang telah dilakukan pada campuran HRS-WC yang menggunakan agregat kasar bernilai abrasi tinggi 50,8% untuk lalulintas rendah (lalulintas < 0,5 juta ESA) menunjukkan bahwa secara umum campuran dengan variasi agregat yang diteliti memenuhi spesifikasi.

ABSTRACT

The road pavement mixture materials is predominated by the aggregate, that contains approximately (90-95)% by mass (75-85)% by volume. One of the strength condition to fulfill the requirement is 40% maximum abrasion value. The utilization of high abrasion value of the coarse aggregate (50%) in the Hot Rolled Sheet Wearing Course Mixture (HRS-WC) in this research is to anticipate the difficulties getting the qualified coarse aggregate or the maximum abrasion value of 40% of the aggregate in the future.

This study was performed using the Marshall method. The specimens were manufactured by varying the coarse aggregate content in the mixture of 44.5%, 39.0% and 33.5%, of each variation of the mixture were then produced laboratory specimens to obtain the temporarily optimum asphalt content by varying the asphalt content between 6.5% and 8.5% with increment 0.5% and the specimens were subsequently tested with Marshall test. On the other hand the refusal density specimens were also manufactured. By combining the temporarily optimum asphalt content and the result from refusal density then could be obtained the optimum asphalt content. Based on this optimum asphalt content, the study was continued with manufacturing specimens for immersion test to obtain the immersion index and Cantabro test to find out the abrasion value or the mass loss during applying impact force.

The results of this investigation were indicated that the percentage variation of 50,8% high abrasion value of coarse aggregate in the pavement mixture influenced the optimum asphalt content. The percentage of coarse aggregate in the HRS-WC mixtures of 44.5%, 39.0% and 33.5% resulted the optimum asphalt content of 7.5%, 7.9%, and 8.3% consecutively. The immersion index of mixture containing 44.5%, 39.0% and 33.5% coarse aggregate were 87.5%, 89,8% and 91.2% respectively. The results from Cantabro test after 300 revolutions indicated that the abrasion or mass loss of the mixture containing 44.5%, 39.0% and 33.5% coarse aggregate were 3.21%, 2.64% and 2.25% respectively; furthermore the retained Marshall stability after Cantabro test were 53.2%, 53.3% and 58.7% respectively. Over all, the research results of utilizing the 50.8% high abrasion value of coarse aggregate in the HRS-WC mixture for low-level traffic flow (< 0.5 million ESA), indicated that the mixtures with various aggregate gradation investigated were satisfied with the design specification.