

ABSTRAK

JULFIKAR ARFA

PENGGUNAAN MATERIAL DAUR ULANG PADA CAMPURAN HOT ROLLED SHEET – BASE (HRS-BASE)

Kata Kunci : Daur Ulang, HRS-BASE, Karakteristik Marshall Test, *Asphalt Institut Ms-20*, *Reclaimed Asphalt Pavement (RAP)*.

Daur Ulang Perkerasan merupakan teknologi alternatif dalam meningkatkan persediaan material lokal yang makin terbatas dan tingginya harga material. Pemanfaatan material bongkaran dalam teknologi daur ulang tentu akan memiliki dampak pada kinerja campuran hasil daur ulang. Ini disebabkan sifat fisik aspal material bongkaran telah mengalami penurunan selama masa umur pelayanan. Dengan ini rumusan masalah dan tujuan penelitian untuk mengetahui bagaimanakah komposisi gradasi, keausan agregat dan pengaruh variasi penambahan material bongkaran tersebut terhadap karakteristik *marshall test*.

Penelitian ini menggunakan metode *Asphalt Institut Ms-20*, Standar Nasional Indonesia (SNI), dan Spesifikasi Umum 2018 – Seksi 6,3. Penelitian ini untuk identifikasi dan mengetahui pengaruh penambahan variasi material *Reclaimed Asphalt Pavement (RAP)* pada campuran daur ulang HRS-BASE. Presentase variasi yang digunakan dalam penambahan material RAP adalah 0%, 10%, 20%, 30% dan 40%. Perkerasan daur ulang adalah proses penggunaan kembali bahan perkerasan lama ditambah atau dikombinasikan dengan campuran agregat dan aspal baru.

Hasil uji menunjukkan bahwa kadar aspal dalam material bongkaran = 5,02%, dan keausan asgregat = 37,05%. Sehingga material lama dapat digunakan dengan melakukan perbaikan gradasi dan penambahan material baru. Nilai VIM terhadap kadar aspal yang memenuhi spesifikasi dengan variasi 0% = 6,5%-7,5%, 10% = 6,0%-7,0%, 20% = 6,0%-6,5%, 30% = 6,0%. Stabilitas dan Flow 0% = 5,5%-7,5%, 10% = 5,0%-7,0%, 20% = 4,5%-6,5%, 30 = 4,0%-6,0%, 40% = 3,5%-5,5%. Marshall Quointient 0% = 5,5%-7,5%, 10% = 5,0%-7,0%, 20% = 4,5%-6,5%, 30 = 4,0%-5,5%, 40% = 3,5%-4,5%. Hasil penentuan kadar aspal optimum pada campuran daur ulang diperoleh 0% = 6,97%, 10% = 6,71%, dan 20% = 6,41%.

ABSTRACT

JULFIKAR ARFA

USE OF RECYCLED MATERIALS IN MIXED HOT ROLLED SHEET – BASE (HRS-BASE)

Keywords : Recycling, HRS-BASE, Marshall Test Characteristics, *Asphalt Institute Ms-20, Reclaimed Asphalt Pavement (RAP)*.

Pavement Recycling is an alternative technology in increasing the limited supply of local materials and the high price of materials. Utilization of dismantled materials in recycling technology will certainly have an impact on the performance of the recycled mixture. This is because the physical properties of the asphalt demolition material have decreased during the service life. With this formulation of the problem and the research objective is to find out how the composition of the gradation, aggregate wear and the effect of variations in the addition of the demolition material on the *marshall test characteristics*.

This study uses the *Ms-20 Institute Asphalt method*, the Indonesian National Standard (SNI), and the 2018 General Specification – Section 6.3. This study was to identify and determine the effect of adding variations of *Reclaimed Asphalt Pavement (RAP)* material to the HRS-BASE recycled mixture. The percentage of variation used in the addition of RAP material is 0%, 10%, 20%, 30% and 40%. Pavement recycling is the process of reusing old pavement materials plus or combined with a mixture of new aggregates and asphalt.

The test results show that the asphalt content in the demolition material = 5.02%, and aggregate wear = 37.05%. So that old materials can be used by improving the gradation and adding new materials. VIM value for asphalt content that meets specifications with variations 0% = 6.5%-7.5%, 10% = 6.0%-7.0%, 20% = 6.0%-6.5%, 30 % = 6.0%. Stability and Flow 0% = 5.5%-7.5%, 10% = 5.0%-7.0%, 20% = 4.5%-6.5%, 30 = 4.0%-6 .0%, 40% = 3.5%-5.5%. Marshall Quotient 0% = 5.5%-7.5%, 10% = 5.0%-7.0%, 20% = 4.5%-6.5%, 30 = 4.0%-5, 5%, 40% = 3.5%-4.5%. The results of determining the optimum asphalt content in the recycled mixture obtained 0% = 6.97%, 10% = 6.71%, and 20% = 6.41%.

Keywords: Recycling, HRS-BASE, Marshall Test Characteristics, *Asphalt Institute Ms-20, Reclaimed Asphalt Pavement (RAP)*.