

ANALISIS EFEK KADAR AIR 1%, 1,5% DAN 2% DALAM AGREGAT CAMPURAN LAPISAN ASPAL BETON *AC-WC* YANG DITINJAU DENGAN KARAKTERISTIK *MARSHALL*

Ashar Vilanata^[1] Abul Fida Ismaili, S.T.,M.Sc^[2]

Program Studi Teknik Sipil Fakultas Sains dan Teknologi Universitas Teknologi Yogyakarta;
e-mail:[1]asharvilanata48@gmail.com, [2]abul.fida@staff.uty.ac.id

ABSTRAK

Pada dasarnya selama produksi di lapangan, timbunan agregat mengandung tingkat kelembaban yang berbeda-beda, kelembaban tersebut merupakan salah satu faktor penyebab kerusakan yang dapat mengurangi kualitas perkerasan aspal. Analisis efek kadar air variatif pada agregat merupakan upaya untuk mengetahui pengaruh yang diakibatkan adanya perbedaan tingkat kelembaban yang diukur berdasarkan penambahan jumlah kadar air pada agregat campuran. Analisis dilakukan dengan peninjauan terhadap nilai karakteristik *marshall*. Penelitian dimulai dengan melakukan pengujian material di laboratorium, setelah itu melakukan pembuatan benda uji dengan penambahan jumlah kadar air sebanyak 1%, 1,5% dan 2% pada agregat campuran. Selanjutnya melakukan pengujian benda uji menggunakan metode *marshall test* untuk memperoleh data primer. Dari data tersebut kemudian dilakukan analisis berdasarkan perbedaan kadar air pada agregat campuran. Berdasarkan hasil analisis, efek kadar air 1%, 1,5% dan 2% dalam agregat campuran pada nilai stabilitas berturut-turut adalah 799,36 kg, 730,86 kg dan 707,85kg, *flow* berturut-turut adalah 4,45 mm, 4,05 mm dan 4,30 mm, *VMA* berturut-turut adalah 22,43%, 21,23% dan 19,54%, *VFA* berturut-turut adalah 58,29%, 62,56% dan 68,11%, dan *VIM* berturut-turut adalah 9,35 %, 7,94 % dan 6,32 %. Adapun hasil perbandingan benda uji normal dengan benda uji yang agregat campurannya dipengaruhi kadar air variatif adalah, nilai stabilitas benda uji yang dipengaruhi kadar air variatif cenderung menurun, *flow* benda uji yang dipengaruhi kadar air variatif mengalami peningkatan, *VIM* benda uji yang dipengaruhi kadar air variatif mengalami peningkatan, *VMA* benda uji yang dipengaruhi kadar air variatif mengalami peningkatan, *VFA* benda uji yang dipengaruhi kadar air variatif cenderung menurun.

Kata kunci: *AC-WC (Asphalt Concrete-Wearing Course)*, Agregat, Kadar Air, *Marshall*

ANALYSIS OF THE EFFECTS OF 1%, 1.5% AND 2% WATER CONTENT IN MIXED AGGREGATE OF ASPHALT CONCRETE LAYER AC-WC REVIEWED WITH MARSHALL CHARACTERISTICS

Ashar Vilanata[1] Abul Fida Ismaili, S.T., M.Sc[2]
Civil Engineering Study Program, Faculty of Science and Technology,
University of Technology Yogyakarta;
e-mail:[1]asharvilanata48@gmail.com, [2]abul.fida@staff.uty.ac.id

ABSTRACT

Basically, during production in the field, the aggregate heap contains different levels of moisture, and this moisture is one of the factors causing damage that can reduce the quality of the asphalt pavement. Analysis of the effect of variable moisture content on aggregates is an attempt to determine the effect caused by differences in humidity levels measured based on the addition of the amount of water content in the mixed aggregate. The analysis was carried out by reviewing the value of the Marshall characteristics. The study began by testing the material in the laboratory, after that making the specimens with the addition of 1%, 1.5% and 2% water content in the mixed aggregate. Furthermore, testing the test object using the Marshall test method to obtain primary data. From these data, an analysis was then carried out based on the difference in water content in the mixed aggregate. Based on the results of the analysis, the effect of moisture content of 1%, 1.5% and 2% in the mixed aggregate on the stability values are 799.36 kg, 730.86 kg and 707.85 kg, respectively, flow is 4.45 mm. , 4.05 mm and 4.30 mm, VMA were 22.43%, 21.23% and 19.54%, VFA were 58.29%, 62.56% and 68.11% respectively , and VIM were 9.35%, 7.94% and 6.32%, respectively. The results of the comparison of normal specimens with test specimens whose mixed aggregates are affected by varied water content are, the stability value of the specimens affected by variable water content tends to decrease, the flow of test specimens affected by variable water content increases. The VIM of the specimens affected by the variable moisture content increased, the VMA of the specimens affected by the variable moisture content increased, and the VFA of the specimens affected by the variable moisture content tended to decrease.

Keywords: AC-WC (Asphalt Concrete-Wearing Course), Aggregate, Moisture Content, Marshall