

**PENGARUH PENAMBAHAN *POLYETHYLENE
TEREPHTHALATE* (PET) DENGAN KADAR 3%, 5% DAN 7%
PADA CAMPURAN ASPAL
AC-WC TERHADAP KARAKTERISTIK *MARSHALL***

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ABSTRAK

Adanya penambahan bahan polimer dalam campuran aspal merupakan suatu modifikasi yang dapat meningkatkan nilai stabilitas aspal dibandingkan dengan campuran yang dilakukan tanpa penambahan polimer. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan polimer *Polyethylene Terephthalate* (PET) dengan kadar 3%, 5% dan 7% pada campuran aspal AC-WC terhadap karakteristik *Marshall*. Dalam penelitian ini dilakukan menggunakan metode eksperimental laboratorium, dengan penambahan polimer PET sebagai bahan tambah pada campuran aspal AC-WC. Pada tahapan awal pengujian didapat Kadar Aspal Optimum (KAO) sebesar 6,0%. Kemudian dari KAO tersebut dibuat lagi sample yang dicampurkan dengan polimer PET sebanyak 3%, 5% dan 7% dari berat aspal untuk dilakukan pengujian *Marshall*. Berdasarkan hasil pengujian dan analisis yang dilakukan menunjukkan bahwa penambahan polimer PET dengan kadar 3%, 5% dan 7% pada campuran aspal AC-WC dapat mempengaruhi nilai karakteristik *Marshall*. Dengan pengaruh yang ditimbulkan dari penambahan polimer PET adalah semakin banyak persentase penambahannya maka akan semakin tinggi nilai stabilitas, flow, dan VFB yang terbentuk. Sedangkan untuk nilai VMA, MQ, dan VIM, mengalami penurunan seiring dengan semakin banyak persentase penambahan polimer PET yang digunakan. Dari hasil yang didapatkan nilai stabilitas tertinggi pada campuran aspal dengan penambahan polimer diperoleh pada variasi kadar polimer 5% sebesar 1810 kg, nilai kelelahan (*flow*) tertinggi pada kadar polimer 7% sebesar 3,57 mm, nilai MQ sebesar 650 kg/mm pada kadar polimer 3%, nilai VIM sebesar 4,48% pada kadar polimer 3%, nilai VMA sebesar 16,78 % pada kadar polimer 3% dan nilai VFB memiliki nilai terbesar pada kadar polimer 5% yaitu 81,15%.

Kata Kunci: Aspal AC-WC, Laboratorium, *Marshall*, *Polyethylene Terephthalate*

THE EFFECT OF ADDITIONAL POLYETHYLENE TEREPHTHALATE (PET) LEVELS OF 3%, 5% AND 7% IN AC-WC ASPHALT MIXED ON THE CHARACTERISTICS OF MARSHALL

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ABSTRACT

The addition of polymer material in the asphalt mixture is a modification that can increase the stability value of asphalt compared to the mixture carried out without the addition of polymer. This study aims to determine the effect of adding Polyethylene Terephthalate (PET) polymer with levels of 3%, 5% and 7% to the AC-WC asphalt mixture on Marshall characteristics. This research was carried out using a laboratory experimental method, with the addition of PET polymer as an additive to the AC-WC asphalt mixture. In the early stages of testing, the Optimum Asphalt Content (KAO) was 6.0%. Then from the KAO, samples were made again which were mixed with PET polymer as much as 3%, 5% and 7% of the weight of the asphalt for Marshall testing. Based on the results of the tests and analyzes carried out, it was shown that the addition of PET polymer with levels of 3%, 5% and 7% in the AC-WC asphalt mixture could affect the value of Marshall characteristics. With the effect caused by the addition of PET polymer, the higher the percentage addition, the higher the stability, flow, and VFB values formed. Meanwhile, the value of VMA, MQ, and VIM decreased along with the increasing percentage of addition of PET polymer used. From the results obtained, the highest stability value in the asphalt mixture with the addition of polymer was obtained at a variation of 5% polymer content of 1810 kg, the highest flow value at 7% polymer content of 3.57 mm, MQ value of 650 kg/mm at a high concentration of 3% polymer, VIM value of 4.48% at 3% polymer content, VMA value of 16.78% at 3% polymer content and the VFB value has the largest value at 5% polymer content, which is 81.15%.

Keywords: AC-WC Asphalt, Laboratory, Marshall, Polyethylene Terephthalate