

ABSTRAK

PEMANFAATAN LIMBAH *ASPHALT MIXING PLANT* (AMP) SEBAGAI SUBSTITUSI SEBAGIAN MATERIAL CAMPURAN ASPAL PADA LAPIS AC-WC

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Proses produksi pada *Asphalt Mixing Plant* (AMP) menghasilkan limbah berupa agregat *overflow* dan *filler dust* yang terbuang akibat kelebihan komposisi maupun ukuran butir, namun secara kualitas masih berpotensi dimanfaatkan kembali untuk menekan volume limbah sekaligus mengurangi eksploitasi agregat alam. Penelitian ini bertujuan menganalisis kelayakan pemanfaatan agregat *overflow* sebagai substitusi agregat kasar dan *filler dust* sebagai bahan pengisi terhadap karakteristik Marshall campuran AC-WC. Metode yang digunakan adalah eksperimental laboratorium dengan variasi agregat *overflow* 0%, 5%, 10%, dan 15%, serta *filler dust* 0%, 1%, 2%, dan 3%, sehingga diperoleh 16 kombinasi variasi. Hasil pengujian memperoleh Kadar Aspal Optimum (KAO) sebesar 6,06%. Penambahan agregat *overflow* dan *filler dust* secara konsisten meningkatkan nilai stabilitas dan Marshall *Quotient*, serta menurunkan nilai *flow* seiring bertambahnya kadar *filler dust*. Sebagian besar dari 16 kombinasi variasi memenuhi Spesifikasi Umum Bina Marga 2025, dengan variasi optimum 10% *overflow* 2% *filler dust* yang menghasilkan nilai stabilitas 1.218,6 kg, *flow* 3,00 mm, MQ 406,2 kg/mm, VIM 4,18%, VMA 15,48%, dan VFA 72,99%. Variasi ini dipilih karena memberikan keseimbangan terbaik antar seluruh parameter Marshall, sehingga pemanfaatan limbah AMP terbukti memberikan pengaruh positif terhadap karakteristik campuran AC-WC.

Kata Kunci: Limbah AMP, Agregat *Overflow*, *Filler dust*, AC-WC, Karakteristik Marshall

ABSTRACT

UTILIZATION OF ASPHALT MIXING PLANT (AMP) WASTE AS PARTIAL SUBSTITUTION OF ASPHALT MIXTURE MATERIALS IN AC-WC LAYERS

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The production process at the Asphalt Mixing Plant (AMP) generates waste in the form of overflow aggregate and filler dust, which are discarded due to excess composition or grain size, yet still have good quality and potential to be reused in order to reduce waste volume while minimizing the exploitation of natural aggregates. This study aims to analyze the feasibility of utilizing overflow aggregate as a coarse aggregate substitute and filler dust as a filler material on the Marshall characteristics of AC-WC mixtures. The method used was a laboratory experiment with overflow aggregate variations of 0%, 5%, 10%, and 15%, and filler dust variations of 0%, 1%, 2%, and 3%, resulting in 16 combination variations. The test results obtained an Optimum Asphalt Content (OAC) of 6.06%. The addition of overflow aggregate and filler dust consistently increased the stability and Marshall Quotient values, while decreasing the flow value as the filler dust content increased. Most of the 16 combination variations met the 2025 General Specifications, with the optimum variation being 10% overflow 2% filler dust, which produced a stability of 1,218.6 kg, flow of 3.00 mm, MQ of 406.2 kg/mm, VIM of 4.18%, VMA of 15.48%, and VFA of 72.99%. This variation was selected because it provided the best balance among all Marshall parameters, thus the utilization of AMP waste was proven to provide a positive effect on the characteristics of AC-WC mixtures.

Keywords: *AMP Waste, Overflow Aggregate, Filler dust, AC-WC, Marshall Characteristics*