

# **PENGARUH VARIASI TEMPERATUR PEMADATAN DENGAN SUHU 115°C, 120°C, 125°C, 130°C, TERHADAP KINERJA PERKERASAN ASPAL**

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## **ABSTRAK**

Pada dasarnya penelitian ini dilakukan untuk mengetahui pengaruh variasi temperatur pada proses pemadatan terhadap lapis aspal beton (Laston) AC-WC (*Asphalt Concrete-Wearing Course*). Temperatur merupakan salah satu faktor penyebab kerusakan yang dapat mengurangi kualitas perkerasan aspal. Analisis variasi temperatur pemadatan merupakan upaya mengetahui pengaruh yang dikibatkan rendahnya temperatur pemadatan yang diukur berdasarkan nilai karakteristik *marshall* serta dengan acuan Spesifikasi Bina Marga 2018. Tujuan penelitian untuk mengetahui pengaruh variasi suhu pemadatan terhadap stabilitas, *flow*, VMA, VFA, dan VIM, pada suhu 115°C, 120°C, 125°C dan 130°C dan juga untuk mengetahui perbandingan antara campuran asfalt pada suhu normal dan pada suhu yang telah divariasi. Metode penelitian yang dipakai berbasis eksperimental dan untuk metode analisis data menggunakan *Marshall* berdasarkan RSNI M-01-2003. Berdasarkan hasil analisis, pengaruh variasi temperatur 115°C, 120°C, 125°C dan 130°C nilai stabilitas berturut-turut adalah 494,45 kg, 513,69 kg, 577,99 kg, dan 601,11 kg. *flow* berturut-turut adalah 3,40 mm, 3,50 mm, 3,46 mm, dan 3,12 mm. VMA berturut-turut adalah 24,008%, 19,802%, 21,221%, dan 20,928%. VFA berturut-turut adalah 53,377 %, 68,295 %, 62,061 %, dan 63,716 %. VIM berturut-turut adalah 11,193 %, 6,278 %, 7,936 %, dan 7,593%. Adapun perbandingan benda uji normal dengan benda uji yang suhunya telah divariasikan adalah nilai stabilitas benda uji yang suhunya variatif cenderung menurun, *flow* benda uji yang suhunya telah divariasikan mengalami penurunan, VIM benda uji yang suhunya telah divariasikan cenderung mengalami peningkatan, VMA benda uji yang suhunya telah divariasikan cenderung mengalami peningkatan, VFA benda uji yang temperaturnya telah divariasikan cenderung menurun.

Kata Kunci: Agregat, *Asphalt Concrete-Wearing Course* (AC-WC), *Marshall*, Variasi Temperatur

# THE EFFECT OF VARIATION OF COMPACTION TEMPERATURE OF 115 °C, 120 °C, 125 °C, 130 °C, ON THE PERFORMANCE OF ASPHALT PAVEMENT

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## ABSTRACT

This research was conducted to determine the effect of temperature variations on the compaction process on the AC-WC (Asphalt Concrete-Wearing Course) asphalt concrete layer. Temperature is one of the factors causing damage that can reduce the quality of asphalt pavement. The analysis of variations in compaction temperature is an attempt to determine the effect of low compaction temperature which is measured based on the value of the marshall characteristics and with reference to the 2018 Highways Specification. The purpose of the study was to determine the effect of variations in compaction temperature on stability, flow, VMA, VFA, and VIM, at a temperature of 115°C, 120°C, 125°C and 130°C and also to determine the ratio between asphalt mixture at normal temperatures and at temperatures that have been varied. The research method used is experimental based and for data analysis method using Marshall based on RSNI M-01-2003. Based on the results of the analysis, the effect of temperature variations 115°C, 120°C, 125°C and 130°C stability values are 494.45 kg, 513.69 kg, 577.99 kg, and 601.11 kg, respectively. flow is 3.40 mm, 3.50 mm, 3.46 mm, and 3.12 mm. The VMAs are 24.008%, 19.802%, 21.221%, and 20.928%, respectively. VFA were 53,377%, 68,295%, 62,061 %, and 63,716%, respectively. The VIMs were 11.193%, 6.278%, 7.936%, and 7.593%, respectively. The comparison of normal specimens with specimens whose temperatures have been varied shows that the stability value of test objects with varying temperatures tends to decrease, the flow of test objects whose temperatures have been varied decreases. The VIM of the test object whose temperature has been varied tends to increase, the VMA of the test object whose temperature has been varied tends to increase, and the VFA of the test object whose temperature has been varied tends to decrease.

**Keywords:** Aggregate, Asphalt Concrete-Wearing Course (AC-WC), Marshall, Variation of Temperature