

ABSTRAK

Penelitian ini bertujuan untuk mengevaluasi pengaruh penambahan lateks pada campuran aspal porus terhadap stabilitas dan karakteristik fisiknya. Campuran yang diuji menggunakan aspal penetrasi 60/70 dengan kadar aspal optimum (KAO) 5,35%, serta penambahan lateks pada variasi 0%, 1%, 2%, dan 3%. Agregat kasar dan halus yang digunakan diperoleh dari PT. Uniagri Prima Teknindo, dan lateks dari Perkebunan Sumberjambe. Pengujian dilakukan menggunakan metode Marshall untuk mengukur stabilitas, flow, Void in Mix (VIM), Void in Mineral Aggregate (VMA), Void Filled with Asphalt (VFA), dan Marshall Quotient. Hasil pengujian menunjukkan bahwa stabilitas campuran aspal porus meningkat dari 1014,21 kg (tanpa lateks) menjadi 1124,47 kg pada penambahan 2% lateks, yang merupakan nilai tertinggi. Namun, pada 3% lateks, stabilitas sedikit menurun menjadi 1120,06 kg. Nilai VIM menunjukkan peningkatan kandungan udara, dengan hasil 17,07% (0% lateks), 18,21% (1% lateks), 18,51% (2% lateks), dan 18,65% (3% lateks), semuanya memenuhi standar 15%-25%. Nilai flow pada kadar 0%, 1%, 2%, dan 3% lateks tercatat 5,40 mm, 3,80 mm, 5,00 mm, dan 5,40 mm, semua melebihi standar minimum 3 mm. Pada uji VFA, hasilnya menurun dengan nilai 27,96% (0% lateks), 25,45% (1% lateks), 24,85% (2% lateks), dan 24,55% (3% lateks), yang berada di bawah standar minimum 65%. Sementara itu, nilai VMA meningkat dengan hasil 23,69% (0% lateks), 24,43% (1% lateks), 24,61% (2% lateks), dan 24,70% (3% lateks), melebihi standar minimum 15%. Pengujian Marshall Quotient menunjukkan nilai 1,89 kN (0% lateks), 2,66 kN (1% lateks), 2,23 kN (2% lateks), dan 2,04 kN (3% lateks). Penurunan nilai Marshall Quotient pada 2% dan 3% lateks menunjukkan penurunan elastisitas akibat peningkatan kekentalan campuran. Secara keseluruhan, penelitian ini menunjukkan bahwa penambahan lateks hingga 2% meningkatkan stabilitas dan beberapa karakteristik fisik campuran aspal porus, namun penambahan lebih dari 2% dapat menurunkan elastisitas dan pengisian rongga aspal.

ABSTRACT

This study aims to evaluate the effect of latex addition on the stability and physical characteristics of porous asphalt mixtures. The tested mixtures used penetration asphalt 60/70 with an optimum asphalt content (OAC) of 5.35%, with latex added at variations of 0%, 1%, 2%, and 3%. The coarse and fine aggregates used were sourced from PT. Uniagri Prima Teknindo, and latex from Sumberjambe Plantation. Testing was conducted using the Marshall method to measure stability, flow, Void in Mix (VIM), Void in Mineral Aggregate (VMA), Void Filled with Asphalt (VFA), and Marshall Quotient. The test results show that the stability of the porous asphalt mixture increased from 1014.21 kg (without latex) to 1124.47 kg with 2% latex, the highest value. However, at 3% latex, stability slightly decreased to 1120.06 kg. The VIM value showed an increase in air content, with results of 17.07% (0% latex), 18.21% (1% latex), 18.51% (2% latex), and 18.65% (3% latex), all within the 15%-25% standard range. The flow value at 0%, 1%, 2%, and 3% latex was recorded as 5.40 mm, 3.80 mm, 5.00 mm, and 5.40 mm, all exceeding the minimum standard of 3 mm. The VFA test results showed a decrease with values of 27.96% (0% latex), 25.45% (1% latex), 24.85% (2% latex), and 24.55% (3% latex), which are below the minimum standard of 65%. Meanwhile, the VMA value increased with results of 23.69% (0% latex), 24.43% (1% latex), 24.61% (2% latex), and 24.70% (3% latex), exceeding the minimum standard of 15%. The Marshall Quotient test showed values of 1.89 kN (0% latex), 2.66 kN (1% latex), 2.23 kN (2% latex), and 2.04 kN (3% latex). The decrease in Marshall Quotient values at 2% and 3% latex indicates a reduction in elasticity due to increased mixture viscosity. Overall, this study shows that adding latex up to 2% improves the stability and some physical characteristics of the porous asphalt mixture, but adding more than 2% can reduce elasticity and asphalt void filling.