

INTISARI

Bahan tambah aspal merupakan solusi untuk meningkatkan kinerja jalan yang menurun akibat meningkatnya beban kendaraan. *Reacted and Activated Rubber* (RAR) adalah salah satu bahan tambah yang dapat digunakan untuk meningkatkan kinerja aspal. *Reacted and Activated Rubber* (RAR) adalah teknologi baru dari pengembangan *crumb rubber*. Penelitian laboratorium bahan tambah RAR diperlukan untuk mendapatkan rancangan campuran, mengetahui karakteristik Marshall dan mengetahui kadar optimum penggunaan *Reacted and Activated Rubber* (RAR), berdasarkan analisis terhadap data karakteristik campuran.

Penelitian menggunakan bahan campuran yang terdiri aspal, agregat kasar, agregat halus, filler, dan bahan tambah. Bahan campuran perkerasan diuji sesuai dengan spesifikasi yang digunakan. Kadar Aspal Optimum (KAO) yang ditentukan adalah 0%, 20%, 25%, dan 30%. Marshall *Immersion Test* dengan kondisi perendaman 0,5 jam dan perendaman 24 jam. Pengujian *Indirect Tensile Strength* (ITS) dengan kondisi *conditioned* dan *unconditioned*. Total benda uji yang dibuat dalam penelitian adalah 105 buah.

Berdasarkan hasil pengujian Marshall *Immersion Test*, nilai tertinggi pada perendaman 0,5 jam terdapat pada variasi 1 dan untuk nilai terendah terdapat pada variasi 4. Nilai tertinggi dari pengujian Marshall *Immersion Test* dengan perendaman 24 jam didapatkan pada variasi 1 dan nilai terendah didapatkan pada variasi 4. Nilai *Retained Marshall Stability* (RMS) yang memenuhi standar nilai 90% terdapat pada variasi 1. Nilai tertinggi dari pengujian *Indirect Tensile Strength* (ITS) dengan kondisi perendaman 0 jam terdapat pada variasi 2 dan nilai terendah terdapat pada variasi 4. Nilai tertinggi dari pengujian *Indirect Tensile Strength* (ITS) dengan perendaman 24 jam diperoleh Variasi 1 dan nilai terendah didapatkan pada variasi 4. Nilai Rasio Kuat Tarik (RKT) yang memenuhi standar nilai 80% terdapat pada variasi 1.

Kata kunci: *Reacted and Activated Rubber*, *Marhall Immersion Test*, *Retained Masrhall Stability*, *Indirect Tensile Strength*, Rasio Kuat Tarik.

ABSTRACT

Asphalt additives are a solution to improve the performance of the growing asphalt. One of the materials being developed is crumb rubber. Crumb rubber to reduce waste from used tires. The latest crumb rubber development technology is RAR. Laboratory research of RAR added materials is needed to know, know the characteristics, and to know the optimum level of use of Reacted and Activated Rubber (RAR), as well as analysis of data and mixture.

Preparation of mixed materials consisting of asphalt, coarse aggregate, fine aggregate, and filler. The ingredients mix according to the original specifications. then determine the Optimum Asphalt Level (KAO) through the reacted amount and Activated Rubber (RAR) 0%, 20%, 25%, and 30% predetermined. After obtaining the Optimum Asphalt Level (KAO) from Reacted and Activated Rubber (RAR) mixture, continued with Marshall Immersion Test testing of 0.5 h immersion conditions and 24 hours immersion. Next is Indirect Tensile Strength (ITS). The total specimens made in the study were 105 pieces.

Based on the results of Marshall Immersion Test test the highest value at 0.5 h immersion is found in variation 1 whereas for the lowest there is in the variation 4. For the immersion of 24 hours the highest value obtained Variation 1 whereas for the lowest obtained in variation 4. Retained Marshall Stability (RMS) that meet the standard value of 90% is in the variation 1. Then the results of Indirect Tensile Strength (ITS) test the highest value at 0.5 hours immersion is found in variation 2 while for the lowest there is in variation 4. For 24 hours immersion the highest value obtained Variation 1 whereas for the lowest obtained in the variation 4. Tensile Strength Ratio (TSR) that meet the standard value of 80% is in variation 1.

Keywords: Reacted and Activated Rubber, Marhall Immersion Test, Retained Masrhall Stability, Indirect Tensile Strength, Tensile Strength Ratio.