

ABSTRAK

Kebutuhan material untuk pelaksanaan pembangunan dan pemeliharaan jalan di setiap wilayah di Indonesia terus meningkat. Besarnya deposit material batu gamping di Indonesia menunjukkan besarnya potensi penerapan teknologi material lokal sub standar. Tujuan penelitian ini adalah untuk mengetahui kelayakan batu gamping/kapur sebagai bahan pengganti *filler* abu batu pada campuran *Superpave* dan mencari pengaruh penggunaan serbuk batu gamping terhadap karakteristik *Marshall Test*, *Indirect Tensile Strength*, *Cantabro Test* dan *Immersion Test*.

Penelitian dilakukan dengan 4 tahapan, yaitu tahap pertama pengujian sifat material yang terdiri dari pengujian agregat, aspal, *filler* serbuk batu gamping. Tahap kedua menentukan kadar aspal optimum pada proporsi *filler* pengganti 0%, 25%, 50%, 75% dan 100%. Tahap ketiga melakukan pengujian *Marshall*, *Indirect Tensile Strength*, *Cantabro*, dan *Immersion Test*. Tahap keempat melakukan analisis, pembahasan dan pengambilan kesimpulan dari hasil pengujian yang telah dilakukan.

Hasil penelitian menunjukkan bahwa *filler* serbuk batu gamping dapat digunakan sebagai *filler* pengganti dalam campuran *superpave* berbahan ikat Starbit E-55. Hasil pengujian *Marshall* menunjukkan bahwa kemampuan campuran menahan beban dan kelenturan semakin bertambah. Hal ini dapat dilihat dengan meningkatnya penambahan gamping sampai kadar 50%. Nilai kemampuan menahan gaya tarik (*Indirect Tensile Strength*) mengalami kenaikan sampai pada kadar 50% dan mengalami penurunan pada kadar 75%. Nilai *Cantabro Loss* pada semua kadar *filler* pengganti gamping memenuhi syarat Bina Marga (2010) $\leq 20\%$. Nilai *IRS* mengalami kenaikan sampai substitusi *filler* gamping 50%, Hal ini menunjukkan bahwa keawetan (*durability*) semakin baik namun mengalami penurunan pada substitusi *filler* gamping 75%.

Kata Kunci : *superpave*, starbit E-55, *filler* serbuk batu gamping

ABSTRACT

Material requirements for the implementation of construction and maintenance of roads in every region in Indonesia continue to increase. The large deposit of limestone material in Indonesia shows the large potential for the application of sub standard local material technology. The purpose of this study was to determine the feasibility of limestone as a substitute for rock ash filler in the Superpave mixture and explore the effect of using limestone powder on the characteristics of the Marshall Test, Indirect Tensile Strength, Cantabro Test and Immersion Test.

The study was conducted in 4 stages, namely the first stage of testing material properties consisting of aggregate, asphalt, limestone powder filler testing. The second stage determines optimum asphalt content in the proportion of filler substitutes 0%, 25%, 50%, 75% and 100%. The third stage is testing Marshall, Indirect Tensile Strength, Cantabro, and Immersion Test. The fourth stage is analyzing, discussing and drawing conclusions from the results of tests that have been carried out

The results showed that the limestone powder filler can be used as a substitute filler in a superbit mix based on the Starbit E-55. Marshall test results show that the ability of the mixture to withstand the load and flexibility is increasing. This can be seen by increasing the addition of limestone up to 50% and the flow value continues to increase. The value of the ability to withstand the force of attraction (Indirect Tensile Strength) has increased to levels of 50% and menglamai decreased at levels of 75%. Cantabro Loss value on all limestone filler content fulfills Bina Marga requirements (2010) < 20%. The value of IRS had increased to 50% limestone filler substitution. This shows that durability was getting better but had decreased to 75% limestone filler substitution.

Keywords : superpave, starbit E-55, limestone powder fillers