

Investigation on the performance of Limestone as filler on various pavement Mixtures

ABSTRACT

Additives added to the flexible pavement mixture aim to increase the strength of the pavement. Limestone which is a sedimentary rock consists of the mineral calcium carbonate (calcite) or the double carbonate of calcium and magnesium (dolomite). The use of limestone in pavement mixtures is expected to increase the performance of Marshall parameters. This study aims to determine the suitability of limestone as a filler for 3 types of pavement mixtures, namely Asphalt Concrete Wearing Course, Hot Rolled Sheet and Split Mastic Asphalt. In this study, the limestone used was sourced from Jorong Durian, Nagari Kamang Mudiak, Kamang Magek District, Agam Regency, West Sumatra Province. The tests were carried out using following variations of limestone; 0%, 25%, 50%, 75%, 100% of the total amount of filler in the mixture. The results of the study using limestone as filler obtained at an optimum content of 29% for AC-WC, 22% for HRS, and 82.5% for SMA. In addition, AC-WC pavement was found to the best increase in Marshall stability performance. Therefore, it can be concluded that limestone from Kamang Mudiak is most suitable to be added to AC-WC pavement mixtures.