



## Abstract

Due to the high demand for materials for road construction, Bantak and Clereng have been introduced as alternative materials for road pavement. Unfortunately, Bantak has high porosity that leads to the endurance and durability problems of the pavement function. Durability is defined as the ability to maintain satisfactory cohesion and adhesion in long term service under environmental condition such as the presence of water. Water is easily absorbed in a porous aggregate, causing loss of cohesion or strength, called moisture damage. Therefore, measuring the durability of a mixture that uses Bantak and Clereng as the basic aggregate materials is important.

In terms of durability caused by moisture damage, this study aims at finding the durability index values by using Marshall and ITS method. In this research, the optimum asphalt contents were based on the aggregate variations I, II, III of 6.2%, 6.3%, and 7% respectively. The total 108 specimens were immersed based on time series of 0, 1, 2, 4, 7, and 14 days in water bath at 60°C, subsequently the specimens were then performed Marshall and Indirect Tensile Strength tests. Based on these test results, the durability index values were then analyzed.

From the Marshall test, the Durability Index values for aggregate variations I, II, and III are 35.01%, 28.11%, and 26.10% respectively. Whereas, the index values from ITS test for aggregate variations I, II, and III are 33.70%, 27.97%, and 25.45% respectively. To conclude, the best result is aggregate variation III for it has the lowest value of durability index. The lowest value results from the mixture composition that uses more Clereng as fine aggregate than Bantak as course aggregate. Hence, the mixture has less porosity and water absorption.