ABSTRACT

MARSHALL STUDY ON CHARACTERISTICS OF ASPHALT MIXTURE WITH ADDITION OF WASTE PLASTIC BOTTLE

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This experiment aims to investigate the Marshall characteristics due to the variation addition of PET (Polyethylene Terephthalate) at mixtures AC-BC (Asphalt Concrete-Binder Course) finely graded with reference to the specification of Bina Marga 2010. This research was conducted by differentiating gradations of the test specimen and the percentage addition of PET (Polyethylene Terephthalate). The 1st group test object group was represented by middle limit gradation and The 2nd group test object was represented by the upper limit. Group specimen addition of PET (Polyethylene Terephthalate) are represented respectively gradation middle limit and upper limit gradation.

From the result of aalysis has obtained the values of Marshall parameters, the value of the 1st object groups test and 2nd object groups test, for the parameters marshall meets the specifications already determined by the Bina Marga 2010 on the asphalt level range 6.38% up 6.5%, and the optimum bitumen content value has been obtained is 6.44%. The addition of PET (Polyethylene Terephthalate) in a mixture of AC - BC performed at levels of 0 % , 1.5% , 2.5% , 3.5% , 4.5% , 5.5 % and 6.5 % . in this study experienced a change in parameters Marshall. The Changes that meet the standards of Bina Marga 2010 are in terms of strength stability, flow and Marshall Quotient values. While those does not meet the standards of Bina Marga 2010 are density values (VIM) cavity , the cavity filled with aggregate (VMA) and the cavity filled with asphalt (VFA)

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This research proves that with the addition of variations of PET (Polyethylene Terephthalate) in a mixture of AC-BC (Asphalt Concrete-Binder Course) was affected to the Marshall characteristics, as high as the levels of addition PET (Polyethylene Terephthalate) so the value of stability will increase but the percentage of the value of void content in the mix will be higher.

Keywords : AC-BC (Asphalt Concrete-Binder Course), Marshall, PET (Polyethylene Terephthalate)