

## EFFECT OF ADDING PLASTIC WASTE LDPE (LOW DENSITY POLYETHYLENE) AND PET (POLYETHYLENE TEREPHTHALATE) ON THE BEHAVIOUR OF STABILITY MARSHALL CHARACTERISTICS OF ASPHALT CONCRETE MIXTURE

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### ABSTRACT

The use of both LDPE and PET plastic waste as an additive to asphalt can increase the stability value for the mixture of Asphalt Concrete -Wearing Course (AC-WC). This research aims to determine how much influence conventional asphalt and each addition of plastic waste material, both homogeneity, and stability value, on the characteristics of the asphalt concrete mixture. In the addition of plastic waste, LDPE and PET are made varying from 0%; 0.25%; 0.50%; 0.75%; 1.00%; and 1.25%. This research was conducted at the Transportation and Highway Laboratory, Engineering Faculty, Tadulako University. The Optimum Asphalt Content (KAO) of the AC-WC mixture was measured using the Marshall method. Each Marshall test results on conventional asphalt and variations in the addition of LDPE and PET plastics to hot asphalt with the highest stability value for each KAO, LDPE variation of 0.50% namely 1783.690 kg at 30 minutes immersion and PET variation of 0.50% namely 1766.926 kg at 30 minutes immersion. The results of the maximum stability value are tested by SEM and EDS to ensure the homogeneity of a mixture of both LDPE and PET and conventional asphalt. The results of the SEM and EDS tests show that the mixture of asphalt and LDPE is more homogeneous than asphalt and PET.

**KEYWORDS:** Stability, Asphalt and LDPE, Asphalt and PET, SEM, and EDS

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