

MARSHALL TEST CHARACTERISTICS OF ASPHALT CONCRETE MIXTURE WITH SCRAPPED TIRE RUBBER AS A FINE AGGREGATE

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Abstract	<p>Highways are important transportation infrastructures that influence economy, culture, and security. Most of the highways in Indonesia are flexible pavement that use asphalt as a binder. The use of scrapped tire rubber as a partial replacement of fine aggregates is based on the limited available natural aggregate in nature. Utilization of scrapped tire rubber as a fine aggregate is one of the alternatives for reducing environmental pollution and supporting Clean Development Mechanism program. The aim of this study is to analyze the Marshall test characteristics of asphalt concrete (AC) mixture that use scrapped tire rubber as a partial substitute of fine aggregate and comparing with a standard mixture. Laboratory tests are performed on three different types of mixtures as follows the mix without scrapped tire rubber, mix containing 50%, and 100% substitution of aggregate at fraction of No. 50 with scrapped tire rubber. The test, it show that optimum asphalt content for ACStandard mixture is 6.76%, while ACScrapped-tire 50% mixture is 7.04% and ACScrapped-tire 100% mixture is 6.25%. The use of scrapped tire rubber in asphalt concrete mixtures can improve the resistance to permanent deformation and resistance to water. The use of scrapped tire rubber is acceptable as a partial replacement of aggregate in asphalt concrete mixtures.</p>
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