

Characterization of Asphalt Concrete Produced from Scrapped Tire Rubber

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Abstract	<p>Scrapped tire rubbers have been proposed as flexible pavement components because they are waste materials. Sustainable development of flexible pavement by utilizing waste tire rubber to replace natural resources generates positive impact to the nature and reducing environmental pollution. This paper presents a study on the investigation of waste scrapped tire rubber as fine aggregate in the production of Asphalt Concrete (AC) mixture. There are three type of AC mixture with 0%, 50%, and 100% of waste scrapped tire rubber replacement of aggregate at fraction No. 50 (0.279 mm). Laboratory test is performed on six characteristics of Marshall test are void in mineral aggregate, void in mixture, voids filled with bitumen, stability, flow, and Marshall quotient. The results showed that the optimum asphalt content for AC(Standard) mixture is 6.78%, while AC(Scrapped-tire) 50% mixture is 7.10% and AC(Scrapped-tire) 100% mixture is 6.22%. Based on the Marshall Test characteristics, scrapped tire rubber can be used as an alternative material to replace fine aggregate in AC mixtures for road surface layer. The use of scrapped tire rubber in asphalt concrete mixtures can improve the resistance to permanent deformation due to ruts and provide better resistance to high temperatures and loads.</p>
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