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Use of Waste Road-Asphalt as Aggregate in Pavement Block Production

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Abstract : This research investigated the possibility of replacing coarse and fine aggregates with waste road-asphalt (RWA), when sieved appropriately, in concrete production. Interlock pavement block is used widely in many parts of the world as modern day solution to outdoor flooring applications. The weight-percentage replacements of both coarse and fine aggregates with RWA at 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80% and 90% respectively using a concrete mix ratio of 1:2:4 and water-to-cement ratio of 0.45 were carried out. The interlock block samples produced were then cured for 28days. Unconfined compressive strength (UCS) and the water absorption properties of the samples were then tested. Comparison of the results of the RWA-containing samples to those of the respective control samples shows significant benefits of using RWA in interlock block production. UCS results of RWA-containing samples compared well with those of the control samples and the RWA content also influenced the lowering of the water absorption of the samples. Overall, the research shows that it is possible to replace both coarse and fine aggregates with RWA materials when sieved appropriately, hence indicating that RWA could be recycled beneficially.

Keywords : aggregate, block-production, pavement, road-asphalt, use, waste
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