

Performance of permeable concrete pavement containing recycled aggregate

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ABSTRACT

Permeable pavement is a form of concrete pavement with a high porosity that allows water from precipitation and other sources to pass through directly, decreasing runoff and permitting groundwater recharging. It is used for concrete flatwork applications. The aim of this study is to evaluate the performance of permeable concrete containing Recycled Coarse Aggregate (RCA), determine the optimum replacement of RCA and study its image characteristic. RCA is the coarse aggregate obtained from the Reclaimed Asphalt Pavement (RAP) that the bitumen content inside it has been extracted. The method used to evaluate the aggregate was bitumen extraction, aggregate crushing value (ACV) and aggregate impact value test (AIV). For pavement concrete mixture was evaluate through compressive strength, flexural strength, porosity, and skid resistance test where image analysis used to characteristic the specimen. Generally, permeable concrete sample containing RCA had the similar compressive strength and exceed the flexural strength when compared to the conventional porous concrete. However, the strengths have a decreasing value with the increase of RCA percentage. On the other hand, for porosity, the percentage increases when the RCA percentage was also increasing. Finally, the skid resistance value is higher than 35 in the dry and wet conditions.

KEYWORDS

Concrete Pavement; Road engineering; Pavement materials

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