عنوان مقاله:

The Effect of Fibre Length on Porous Concrete Specifications Containing Nanosilica

محل انتشار:

کنفرانس بین المللی پیشرفت های اخیر در مهندسی، نوآوری و تکنولوژی (سال: 1401)

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خلاصه مقاله:

Applying concrete in road pavement has garnered more attention over the past few decades, this is due to lower maintenance costs, more resistance, more prolonged life, and other benefits to asphaltic pavement. Also, the use of additives to well-known materials has always been considered by researchers due to the increase in their performance levels. The use of porous concrete in road construction increases groundwater reserves, runoff control, and other benefits. In this study, nanosilica was used in three percentages of ۳, ۵ and ۷ and its simultaneous effect with polypropylene fibres in length ۴۰, ۴۸ and ۵۴ was examined. In this regard, ۱۰ porous concrete mixing designs were considered and compressive strength tests, tensile strength, flexural strength, and permeability were performed on the samples. The results showed that the use of۵% nanosilica and fibre with a length of ۴۰ mm had the most efficient efficiency. Compressive strength by ۴۱, tensile strength by ۵۹ and flexural strength by ۵۰% increased compared to the control sample. Also, permeability decreased by about ۱۶% compared to the control sample, which contains ۵% nanosilica and ۴۰ mm of fibre.

کلمات کلیدی:

porous concrete, polypropylene fibre, nanosilica, concrete pavement