

عنوان مقاله:

Improving the Performance of Porous Concrete Composites Using Zeolite as a Coarse Grain

محل انتشار:

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خلاصه مقاله:

Porous concrete is a mixture of cement and water that may contain fine grains, which play a role in water transfer and permeability. Porous concrete can act as a drain to pass rainwater and recharge groundwater. In this study, 25%, 50%, 75%, and 100% zeolite were used to replace the coarse aggregates in porous concrete. The effects of the zeolite on the compressive strength, permeability coefficient, porosity, and density of the concrete were investigated. The results showed that the zeolite reduced the compressive strength of the concrete samples because of its porous nature. The permeability coefficient and porosity increased with the addition of zeolite. The highest (10.29 MPa) and lowest compressive strength (6.79 MPa) were observed in the 25% and 100% zeolite samples, respectively. The highest porosity (30.97%) and permeability coefficient (1.76 mm/s) were measured in the 100% zeolite sample. For the 25%, 50%, 75%, and 100% zeolite samples, the permeability coefficient increased by 6.99%, 17.39%, 21.3%, and 24.4%, respectively; the density decreased by 7.77%, 10, 15%, and 19.44%, respectively, with respect to the control sample.

کلمات کلیدی:

Porous concrete, Additive, Zeolite, Physical properties, Groundwater recharge

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