

عنوان مقاله:

Impact of Fiber Reinforcement on Deformation Characteristics of Cemented Sand-Gravel Mixtures

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خلاصه مقاله:

This paper describes triaxial compression tests conducted to determine the effect of fiber inclusion on stiffness and deformation characteristics of sand-gravel mixtures. Tested soil was a mixture of Babolsar sand from the shores of the Caspian Sea and Karaj River gravel. Portland cement was used as the cementing agent and fibers 12mm in length and 0.023mm in diameter at 0%, 0.5% and 1.0% were added to the mixtures. Triaxial tests were performed on saturated samples in consolidated drained and undrained conditions at confining pressures of 100, 200 and 300 kPa. Deviatoric stress-axial strain, volumetric strain-axial strain, pore pressure-axial strain curves with deformation and stiffness characteristics were investigated. Tests results show that fiber addition increased peak and residual shear strength of the soil. Fiber addition resulted in an increase of the maximum positive and negative volumetric strains. In undrained condition, fiber inclusion caused increase in initial positive pore pressure and final suction. It has also been observed that fibers decreased initial tangent stiffness of the cemented sand-gravel mixture.

کلمات کلیدی:

Triaxial tests, reinforced soil, cement-fiber inclusion, stiffness, yield

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