

Microstructural properties of F and C Type fly ash based geobricks

Mustafa Tuncan, Kadir Kilinc and Ahmet Tuncan

Anadolu University, Turkey

In this experimental investigation, pressure formed fly ash based geopolymer brick was produced and the properties of geopolymers, pressure forming process, and the utilization of fly ash in brick production have been extensively investigated. In the scope of this investigation, first, semi-dry geopolymers were prepared and then shaped by pressure forming process. Both F and C type fly ashes were utilized in the preparation of geopolymers. Thus the effect of fly ash type on microstructural properties was determined. In the production of geopolymers, sodium silicate-sodium hydroxide, sodium silicate-potassium hydroxide solutions were used. Sodium hydroxide and potassium hydroxide solutions have been prepared in 12M. The prepared semi-dry geopolymers were formed by applying 30 MPa pressure and 190x90x50 mm bricks were produced. The geopolymer bricks have been treated at three different temperatures (40 °C, 60 °C, 80 °C for 24 hours). Thus, the changes in microstructures were extensively examined. Oven treatment was applied. Scanning Electron Microscope (SEM) analysis has been performed to analyze the microstructure for 190x90x50 mm geobricks.

Biography

Mustafa Tuncan is a professor at the Geotechnical Division, Faculty of Engineering, Anadolu University. He received his B.S. degree from Anadolu University; M.S. degree from Bogazici University; and Ph.D. from Lehigh University. His research interests include soil mechanics, deep excavations, concrete piles, and foundations.

kadirkilinc@anadolu.edu.tr