

## THE SYNTHESIS OF ALUMONOSILICATE SYSTEMS BASED ON ALKALI ACTIVATION OF INDUSTRIAL BY-PRODUCTS

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### **Abstract.**

Portland cement-based products are the most commonly used building materials. However, it is well known that the production of OPC not only consumes significant amount of natural resources and energy but also releases quantity of carbon dioxide (CO<sub>2</sub>) to the atmosphere. The aim of this work is to develop new cementitious material similar to Portland cement-based concrete which is more energetically and environmentally friendly. This article presents preparation, composition and properties of inorganic aluminosilicate polymer, called geopolymer, synthesized from the alkali activation of fly ash/slag mixtures. The effects of different kinds of fly ash from the Czech powerplants and different dosage of slag and alkali activator that influence the compressive strength of hardened geopolymer pastes were discussed. The study of the microstructure was based on XRD, TG-DTA, EGA and SEM-EDX analyses.