Geopolymer preparation from aluminum dross

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In this study aluminum dross based geopolymer samples were made. Geopolymers are inorganic amorphous aluminosilicates, which can be produced by activating aluminum and silicon-based materials using alkaline activator. It was Davidovits, who studied this material system and described the chemical structure of geopolymers by polysialtes. In the research work, aluminum dross and sand were used as solid materials. Sodium hydroxide and sodium water glass were used as an alkali solution for the geopolymerization process. After mixing the raw material, the paste was molded and the geopolymer sam-

ples were aged for 24 hours at room temperature. Then, the samples were kept for 24 hours at 40 °C and then again 24 hours at 60 °C. Particle size distribution and chemical elemental composition were determined after the drying of the samples. Material structure measurements were performed by scanning electron microscopy, which resulted in the morphological properties of the samples. Fourier transform infrared spectroscopy (FTIR) was used to reveal new phases in geopolymer samples. In addition, density and compression strength of the experimental samples were determined.