



UTILIZATION OF COAL FLY ASH FROM POWER PLANTS II. GEOPOLYMER OBTAINING

Maria Harja^{1*}, Marinela Bărbuță², Maria Gavrilescu¹

¹"Gheorghe Asachi" Technical University of Iași, Faculty of Chemical Engineering, 71 Mangeron Blvd., 700050, Iași Romania,

²"Gheorghe Asachi" Technical University of Iași, Faculty of Civil Engineering and Building Services, 43 Mangeron Blvd.,
700050, Iași Romania

Abstract

Study of geopolymer is a developing field of research for capitalizing solid waste and by-products in the view of new materials achievement having characteristics necessary for using as cement substitute. Also, it provides a solution to many problems regarding environment, such as reduction of gaseous emissions and particles matter resulted from cement industry and raw materials economy.

In this paper, the experimental conditions for obtaining new materials on the basis of fly ash from thermoelectrically stations are presented. Sixteen new materials using Class F fly ash and sodium hydroxide 2M solution were synthesized. Fourier transform infrared spectroscopy and scanning electronic microscopy were utilized in this study for characterizing the obtained geopolymer. The main product of reaction in the geopolymer materials was amorphous alkali aluminosilicate. The obtained materials were dependent on the activation treatment.

Key words: activation, characterization, fly ash, geopolymer, sodium hydroxide

* Author to whom all correspondence should be addressed: e-mail: mivanciu@ch.tuiasi.ro