

Preparation of Geopolymer Cements from Tunisian Illito-Kaolinitic Clay Mineral

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Abstract : In this work geopolymer cement are synthesized from Tunisian (illito-kaolinitic) clay. This product can be used as binding material in place of cement Portland. The clay fractions used were characterized with physico-chemical and thermal analyses. The clays materials react with alkaline solution (10, 14 and 18 mol(NaOH)/L) in order to produce geopolymer cements whose pastes were characterized by determining their water adsorption and compressive strength. The compressive strength of the hardened geopolymer cement paste samples aged 28 days attained its highest value (32.3MPa) around 950°C for NaOH concentration of 14M. The water adsorption value of the prepared samples decreased with increasing the calcination temperature of clay fractions. It can be concluded that the most suitable temperature for the calcination of illitio-kaolinitic clays in view of producing geopolymer cements is around 950°C.

Keywords : compressive strength, geopolymer cement, illitio-kaolinitic clay, mineral

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