Geopolymers based on some clay from Burkina Faso: preparation and characterization

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Geopolymers based on clay materials from Burkina Faso were developed and then characterized for use in building. The results of the characterization of the clay mineral material referenced TAN as well as its calcined forms have shown by several analysis techniques (XRD, IR, ICP-AES) that TAN contains kaolinite (71%), quartz (20%), illite (4%) and goethite (2%). TAN clay and its calcined forms are each mixed with the alkaline solution (sodium hydroxide solution 8 mol. L^{-1}) in a mass ratio (alkaline solution/clay) ranging from 0.33 to 0.36. The results of the mechanical and mineralogical tests of the geopolymers produced showed that GP-MK_0 produced had the best performance favorable for its use in construction. Indeed, its linear shrinkage (3.44%) is low and the compressive strength (22.50 MPa) is greater than 4 MPa. This performance of GP-MK_0 is due to the formation of a phase rich in silica and alumina ($Na_2(AlSiO_4)_6(OH)_2. 2H_2O$).

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