CHARACTERIZATION OF DD3 KAOLIN

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Abstract: The DD3 kaolin of Djebel Debbagh-Guelma located in the North-East of Algeria has been characterized by means of scanning electronic microscopy (SEM) and thermal analysis (DTA/TGA). The hydrothermal rock contains mainly 41% silica, 35% alumina, 17% of fire mass and small amounts of MnO, CaO and Fe2O3. Differential thermal analysis scan reveals the existence of several endothermic and exothermic peaks in the temperature range (50-1000)°C. The first endothermic peak at about 80°C can be attributed to the release of interstitial water in the kaolinite [2SiO2 Al2O3 2H2O]. The dehydroxylation to metakaolinite (Al2O3 2SiO2) occurs between 400 and 500°C. The exothermic peak at 995°C can be ascribed to the metakaolinite restructuring. The thermo-gravimetric analysis curve shows that the mass loss between 400 and 800°C is about 14%. The SEM observations show a needle-like form structure with an entanglement in all the directions of the halloysite.

Keywords: Kaolin DD3, ceramic, Refractory, DTA/TGA, SEM