

Mineralogy, thermal characteristics and origin of clay minerals in Shahr-e-Babak playa

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Abstract: Geologically, Shahr-e-Babak playa is located in the southeast of Sanandaj-Sirjan Zone. Based on mineralogical and scanning electron microscopy (SEM) studies, in the studied playa major mineralogical phases include hallosit, kaolinite, illite, quartz, calcite and gypsum. Based on geochemical data, the average aluminum oxide values is 13/93% , silicon oxide is 39/53% and the average of volatiles 18/84% . According to the differential thermal analysis, endothermic reactions of samples occur at temperature approximately 770-810 °C and the exothermic reactions occur at temperature approximately 1120-1140 °C. The main origin of clay minerals in the studied area is sedimentary and they are formed by erosion and weathering of a granitoid batholith in the south of Shahr-e-Babak city. Numerous applications of clay minerals in various industries are reasons to do this research.

Keywords: *Clay mineral; mineralogy; thermal properties; clay playa; Shahr-e-Babak.*

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