

Physico-chemical, mineralogical and ceramic properties of Zeytoon clay deposit from Abadeh area. Fars

B. Etemadi, A. Mohammadzadeh*

Department of Earth Sciences, Faculty of Sciences, Shiraz University

(Received: 27/12/2014, in revised form: 7/4/2015)

Abstract: The Zeytoon clay deposit is located 30 Km northeast of Abadeh at Fars province. In this study, investigated physical, chemical, mineralogical and firing characteristics to evaluate their potential suitability as raw materials in various ceramic applications. Physical properties were identified by consistency limits and cation exchange capacity (CEC). Chemical and mineralogical properties were carried out by XRF and XRD. To evaluate their ceramic behavior, the samples were fired at temperatures 1156°C. Firing characteristics were determined by flexural strength, linear firing shrinkage, and water absorption. A Malaysian clay (BBC), which is a common raw material in ceramic tiles manufacturing, was used as reference sample. Results show that the main oxides in the samples were SiO₂, Al₂O₃ and Fe₂O₃, whereas the other oxides were present only in small quantities. The amount of Fe₂O₃ in Zeytoon clays ranged from 2 to 11 wt.%, whereas Fe₂O₃ in BBC clay is about 2 wt.%. Kaolinite, Pyrophyllite, Illite and Quartz were present as dominant mineral phases and different minor minerals. From the results of the fired properties, and analyses of chemical and mineralogical composition along with the mechanical properties of Zeytoon clays demonstrated that they are most appropriate to be used as raw materials for the production of structural ceramics.

Keywords: *Clay Minerals, Zeytoon, Abadeh, Tiles, Ceramic*

متن فارسی اصل مقاله از صفحه ۷۳۷ تا ۷۴۲ در این شماره به چاپ رسیده است.

*Corresponding author, Tel: 09146377353, Fax: 07112284572, Email: Mohammadzadeh673@gmail.com