

Study of mineralogy, geochemistry and elemental behavior in the process of bentonites formation in Sarbisheh area (South Khorasan, east of Iran)

M. Nakhaei^{*1}, S.S. Mohammadi², I. Rasa³, S. Samiee¹

1- Department of Mining Engineering, Birjand University of Technology, Birjand, Iran

2- Department of Geology, Faculty of Sciences, University of Birjand, Birjand, Iran

3- Department of Geology, Faculty of Earth Sciences, Shahid Beheshti University, Tehran, Iran

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Abstract: Tertiary acidic to intermediate volcanic activities and the role of fault zones in Sarbisheh area have provided suitable conditions for the formation of bentonite, especially in pyroclastic deposits. Southeast Gondakan, Kalateh Pedaran, Golab, Golestan, Asfich, Hasan Kolangi, and Kangan bentonites in 1/100000 geological map of Sarbisheh were selected as the case study. Satellite image processing shows argillic alteration with the presence of montmorillonite. Field and XRD studies approved satellite image processing and bentonite formation in the studied areas. Montmorillonite, anorthite, and cristobalite are the main minerals in these bentonites. Based on available data, Hasan Kolangi, Asfich and Golestan bentonites are Na-Ca, Ca-Na, and Ca-type respectively. Parental rocks of studied bentonites are acidic to intermediate lavas (rhyodacite-dacite to andesite) and pyroclastic rocks (tuff-breccia) that had affected by medium to high-grade alteration. Calculation of geochemical changes in bentonitic zones indicated the decrease of silica, Na, and K and increase of Ca.

Keywords: *Bentonite; Sarbisheh; satellite processing.*

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^{*}Corresponding author; Tel: (056) 32391233; Fax: (056)32252098, Email: nakhaei@birjandut.ac.ir