Mineral chemistry and geothermometry of chlorite in Zavarijan area  
(NE Broujerd-Iran)  

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Abstract: In this paper, the chlorite geothermometry method is used to estimate the low and medium temperature of metamorphism in Zavarijan area, northeast of Boroujerd. Structural formula recalculation for chlorite samples, based on 14 oxygen, show that Si cation numbers are less than 2.91(apfu), and the sum of octahedral cations is very close to 12(apfu), therefore both of them show an indication of trioctahedral chlorite. The mole fractions in interlayered phase($X_c$) confirm the purity of chlorite and lack of any smectite. All major elements in the chlorite are strongly corresponded with each other and chlorite samples composition are mainly ripidolite and pychnochloreite respectively. Chlorite geothermometry shows an average of 345°C, so that corresponded with the average of temperature of chlorite crystallization that is resulted from biotite alteration. Also, this temperature indicates the mesothermal or orogenic fluids that have been importanat in generation of chlorite. Based on the present evidences, we can concluded that formation of chlorite in the studied area is the result of regional metamorphism performance.  

Keywords: Chlorite; mole fractions, alteration; smectite; Zavarijan; Broujerd.