

Mineral chemistry and thermobarometry of Kuh e-Dom granitoid, NE Ardestan

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Abstract: Kuh e-Dom intrusion, located at the northeast of Ardestan, consists of granodiorite and diorite. The granodiorites have been intruded by various basic dikes. Plutonic rocks are mainly composed of plagioclase, biotite, amphibole, pyroxene, alkali-feldspar and quartz. Based on microprobe analysis, the biotite is classified as magnesiobiotites which typically occur at calc-alkaline orogenic igneous rocks. The amphibole belongs to calcic-amphibole group but its composition varies from magnesiohornblende to actinolite in granodiorite and from hornblende-actinolite to actinolite both in diorite and basic dikes. The plagioclase also shows variable composition from oligoclase to andesine in the granodiorite and from andesine to labradorite both in diorite and basic dikes. Based on the mineral chemistry data, the equilibrium temperature of the mineral crystallization is estimated at about 700°C, the pressure equilibrium occurred at ~1.5 Kb, which is consistent with a depth of 5.5 Km .

Key words: mineral chemistry, granodiorite, geothermometry, geobarometry, Kuh e-Dom.