

Tectono-magmatic characteristics of Bagham pluton in southeastern Ardestan: Base on mineral chemistry of clinopyroxene and amphibole

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Abstract: Gabbroic pluton of Bagham is located in southeastern Ardestan and has intruded into Eocene volcanic rocks. The study area is a part of Central Iranian zone and Urumieh-Dokhtar magmatic belt. Clinopyroxene, plagioclase and amphibole are main minerals in the pluton. Mineral chemistry studies show that clinopyroxenes are augite and are plotted in almost medium pressure field. The clinopyroxene composition yields the crystallization temperatures that range from 840°C to 920°C. In tectonic setting diagrams, clinopyroxenes is plotted in orogenic field and related to magmatic arc. Amphiboles plot in the field of calcic amphiboles and are magnesiohornblende. Tectono-magmatic study indicates a sub alkaline nature for the pluton. The coexisting amphibole-clinopyroxene geothermometer shows the temperatures range from 730 to 790 °C. Plagioclases are only felsic mineral in the gabbros. The mineral chemistry of plagioclases shows bytonite (core), labradorite - andesine (rim) and albite (results of saussuritization) fields.

Keywords: *Clinopyroxene; amphibole; tectono-magmatic; Ardestan*.

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