The mineral chemistry and geothermobarometry of gabbroic rocks crystallization of Dehsard area (Southeast of Iran)

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Abstract: The Upper Triassic gabbroic bodies of Dehsard is located in southwest of Kerman in the southern parts of the Sanandaj-Sirjan zone. According to field observation and petrograph studies, the mafic bodies consist of hornblende gabbro. The studied gabbroic bodies are composed of plagioclase, clinopyroxene, amphibole, titanite, apatite, epidote and chlorite. Mineral chemistry studies reveal that the composition of plagioclase is albite-oligoclase and clinopyroxenes have diopsidic composition. The clinopyroxenes are classified as Ca-Mg and Fe clinopyroxenes. The amphiboles belong to calcic amphiboles group (magnesio-hornblende and actinolite). The geothermometry studies of the clinopyroxene and amphibole of the studied hornblende gabbro display that these rocks have crystallized at temperature of 1000 to 1200°C. The geobarometry of studied clinopyroxene estimate the crystallization of gabbroic rocks occurred in 2.05-5.58 kb, equivalent 14 km depth. The chemical compositions of clinopyroxene and amphibole show the minerals have crystallized from a subalkaline calcalkaline magma. The tectonic setting of these magmas are volcanic arc that are derived from the subduction zone.

Keyword: Dehsard; geothermobarometry; clinopyroxene; amphibole; calcalkaline; volcanic arc.

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