Mineral chemistry and thermobarometry of Jurassic diabase dikes swarm from West Reza-Abad (South West of Biarjomand)

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Abstract: In Reza-Abad area (E- Shahrood city), diabasic dikes swarm (gabbro / diorite) with trends east-west intruded into Pre-Cambrian igneous - metamorphic complex of Central Iran Zone. These rocks display intergranular, ophitic and subophitic textures. Clinopyroxene (augite to diopside), plagioclase (oligoclase-andesine and labradorite- bitonite) and amphibole (magnesia hornblende) are the main minerals. Apatite, sphene and magnetite are accessory minerals. Based on the combination of clinopyroxene, primary magma of basalts has alkaline nature and were formed within-plate setting. The Clinopyroxene thermobarometry determines a temperature of 1100-1200 °C and pressures 1 – 10 Kbar with a density in 4-8 Kbar. Based on these results, crystallization of clinopyroxenes begins in the magma chamber at depth of 25km, this depth is at equilibrium with middle crust.

Keywords: Thermobarometry; diabase dike; Reza-Abad; Jurassic; Central Iran