Geochemistry and mineralogy of hornblendite horizons in the Galali and Baba-Ali Iron deposits and their comparison.

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(Received: 3/4/2010, in revised form: 20/10/2010)

Abstract: The ore bodies of Galali and Baba-Ali are two relatively important iron ore deposits in west Iran. These ore deposits are situated in the Sanandaj-Sirjan zone. The deposits are associated with ultramafic, calc-alkaline, carbonatite and other rocks. Macroscopic observations, on the boreholes, show that one of the rare ultramafic rocks (hornblendite) appears in all various horizons parallel to magnetite. Petrological and mineralogical study (microscopic) show that two kinds of hornblendite exist: a) hornblendite with flow-texture and b) without flow-texture. Latter contain only one generation of amphibole. The major rock-forming mineral in this hornblendite is actinolite, which may contain minor concentration of diopside which probably is originated from pyroxenite by late stage supercritical solutions. Other rocks with flow-texture (hornblendite typeII) contain two generations of amphiboles. The first generation generated the flow-texture. Chemical compositions of rock-forming minerals are actinolite or actinolite hornblende and Tschermakitic hornblende. The second generation of amphibole is resulted by recrystallization of first generation. On the basis of XRF analyses, hornblendites are calc-alkaline to low-K tholeitic series into Chemical data of microprobe and regional tectonic indicate that the origin of magma was related to an intra-continental rifting. The subduction processes which were active up to Pliocene, also affected it.

Keywords: Hornblendite; Galali; Baba-Ali; calc-alkaline; subduction.

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