Investigation of Mazraeh Skarn mineralization, North of Ahar, with an emphasis on fluid inclusion studies

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Abstract: The emplacement of Oligo-Miocene age Sheyvardagh intrusive body within the older carbonate and volcanoclastic rocks is responsible for contact metamorphism and creating of Mazraeh deposit in epidote - garnet exoskarn of Western Alborz- lesser Caucasus metallogenic belt. Mineralogical paragenesis consist of magnetite, pyrite, chalcopyrite, bornite, covellite, hematite, goethite and malachite and main mineralization stage occurs in retrograde skarn phase. Trace element analysis show the effects of meteoric fluids on intrusive body during the Skarnification. Two types of fluid inclusions were identified in quartz and calcite minerals of retrograde skarn stage. (L+V) type is recognize with low-medium salinity and low homogenization temperature range (120-356°) and (L+V+S) type is identified in high salinity and slightly higher homogenization temperature range (227-375°). Both of inclusion types entrapped in retrograde skarn stage. (L+V) inclusions originated from metamorphic fluids and (L+V+S) inclusions originated from magmatic – meteoric mixing fluids. Isothermal minxing and surface fluid dilution are main evolution factors in mineralization fluids. Microthermometric values in ore formation stage are conformable with pressure (100 bar) and depth figures (350 - 400 meters). Mazraeh skarn deposit is characterized as an shallow skarn.

Keywords: Western Alborz- lesser Caucasus metallogenic belt; Mazraeh deposit; skarn; fluid inclusions; microthermometry.

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