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Mineralogy, paragenesis and textures associated with metasomatic-hydrothermal processes, Qatruyeh area, Sanandaj- Sirjan zone, SW Iran

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The Qatruyeh area is located at about 40 Km northeastern of Neyriz region, in the eastern edge of the high P-Low T metamorphic Zagros orogenic belt. The studied area principally includes outcrops of green schist facies metamorphic rocks that are thrusted over the Neotethyan ophiolites. Hydrothermal activities occurred episodically in the Mesozoic era . The textural relationships, mineral assemblages and X- Ray diffractions have recognized two different stages of hydrothermal alteration during mineralization. The Mineralization was largely controlled by striking faults and host rock layers. Three different types of magnetite are distinguished in microscopic investigation. The First is euhedral to subhedral, partly replacement by martite with exsolved ilmenites. The Second reveals myrmekite like textures and the last type includes layered magnetite. All of the types are related to replacement textures such as psedomorphism, widening of a fracture filling, irregulare or vermicular intergrowths, islands of unreplaced host rock, cusp or caries, nonmatching walls or borders of a fracture and rims of one mineral penetrating another along its crystallographic direction. X- Ray analyses indicate oxide minerals (Magnetite, Hematite, Maghemite, Specularite, Goethite, Limonite and Ilmenite), Silicate minerals (Tourmaline-shorl and dravite-, Epidote, Chlorite, Actinolite, Titanite, Paragonite, Talc, Muscovite and Quartz), Carbonate minerals (Siderite and Malachite) and Sulfide minerals (Pyrite and Chalcopyrite-minor-) as major phases. The mineral paragenesis and textures show two different stages of metasomatic- hydrothermal alteration. The first stage alteration (Sodic- Calsic) accompanying with mineral paragenesis of Magnetite+ Tourmaline+ Titanite+ Paragonite and the second stage of alteration (Solfidation- Oxidation) follows with Magnetite+ Hematite+ Quartz± Pyrite± Chalcopyrite.