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Mineralogy and Geochemistry of Dacitic domes and associated Cu- Fe-Au Veins occurences during hydrothermal processes, Yazd Province, Iran

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The Panah-koh Cu-Fe-Au vein deposit, located 60 km south west of Yazd Province, between Central Iranian Zone and Orumieh-Dokhtar tectnomagmatic belt. The vains result from hydrothermal processes related to a Neogenes volcanism which produced a dacitic to rhyodacitic dome which responsible for most of the altration and mineralization in this area. mineralization occurs in a series of NW-SW trending fault planes and breccia zones in (Early Combrian) and sand stone (Percambrian) rocks. the main ore minerals are Chalcopyrite, Pyrite,Arsenopyrite,Hematite,Limonite,Malachite,Azurite, with Quartz,Calcite,Dolomite,Barite and minor Chlorite as the main qanque phases.The Panah- Koh volcanic domes crystallized from an I-Type magma formed in a volcanic arc setting.the volcanic rocks show geochemical evidence of fractionation of Biotite,Hornblande and Fledspars.altration of the minerals in the host rocks suggests pH<5.5 and oxidized conditions.On variation diagrams, MgO, MnO, TiO2, CaO, P2O5, Fe2O3, display negative correlations suggesting that these volcanic rocks experienced fractionation of early-crystallized Biotite, Magnetite, Apatite and Plagioclase. The concentration of Sr, Ni, Ba and V decrease with increasing SiO2 suggesting fractionation of early formed Biotite, K-Feldspar, Magnetite and Plagioclase. supergene effects, with penetration of surface waters along faults and fractures, has led to the oxidation and leaching of the host rocks and the enrichment of copper. Quartz crystals were deposited as layers in crustification banding and comb structures along the walls of veins or the composition of the mineralizing fluids. shallow level of emplacement and low temprature of magma, shows that the hydrothermal system was not able to form a skarn deposit in the Panah-Koh district.