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The microthermometry study of fluid inclusions in mineralized veins of Astaneh granitoid rocks (Markazi province, western Iran)

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The Jurassic Astaneh granitoid massif, western Iran, located on the northern part of structural Sanandaj-Sirjan Zone, is best known for occurrences of gold mineralization. This massif mainly consists of granodioritic rocks, which are intrusive into Jurassic metamorphic rocks and are cut by microgranitic and aplitic dykes and mineralized veins. High concentrations of gold are observed in goethitic quartz-sulphide and arsenopyritic veins. These veins are composed of quartz as the most important gangue mineral as well as chalcopyrite, pyrite, scheelite, azurite, malachite, goethite, lepidocrocite, hematite, arsenopyrite, pyrrhotite, bornite, sphalerite, galena, ilmenite, rutile, molybdenite, marcasite, digenite-covelite-chalcocite, tenorite and scorodite accompanied by gold. Based on the study of 22 samples of fluid inclusions in quartz from the mineralized veins, three groups of fluid inclusions including primary, pseudosecondary and secondary have been recognized. Morphologically, they can be grouped as irregular and sphere shaped fluid inclusions. Based on the kind and percentage of existing phases, there are three fluid inclusions groups: biphase liquid enriched fluid inclusions (L+V), triphase liquid enriched (L+V+H) having a salt solid phase (halite) and uniphase gas enriched fluid inclusions (V). This study has been made by heating/freezing method. Data derived from fluid inclusions researches represent homogenization temperature fluids are usually in a range of 300-320 ˚C with salinity between 20-22 %wt (NaCl equivalent). Homogenization temperature and salinity, suggest that mineralization in this area can be grouped as felsic intrusion-related Sn-W deposits.