Intermediate sulfidation epithermal Cu±Au deposit of RashtAbad (North of Zanjan): evidence of mineralization, fluid inclusions and C-O stable isotope

N. Ajalli¹, A. Torkian*, E. Tale Fazel¹

¹Department of Geology, Faculty of Science, Bu-Ali Sina University, Hamedan, Iran

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Abstract: Rasht Abad Cu±Au deposit is a part of the Tarom-Hashtjin metallogenic belt in the western Alborz-Azerbaijan zone. The exposed units in the area include volcanic, sub-volcanic calc-alkaline to shoshonitic rocks with Upper Eocene age and belongs to magmatic arcs setting. The most important alterations related to mineralization include low temperature silicification and sericitic alterations. Mineralization with quartz-sulfide veins in the area consist of a series of oxide (hematite), sulfide (chalcopyrite, galena, bornite, covellite), sulfate (barite) and carbonate (malachite, azurite). Fluid inclusions measurements on primary two-phase L+V inclusions determined homogenization temperatures between 138 to 320°C (229°C) and salinity between 2.49 to 9.41wt% (9.41) NaCl eq, evidence of isothermal mixing and dilution. The δ¹³C (-9.21 to -6.81‰) and δ¹⁸O (-14 to -15‰) also show the influence of meteoric waters in late carbonate veins. The results of this study show that the high similarity between Rasht Abad and intermediate sulfidation epithermal deposits.

Keywords: Dilution; polymetallic mineralization; fluid inclusion, Tarom-Hashtjin metallogenic belt

*Corresponding author; Tel: 081-38381601-9, Fax: 08138381172, E-mail: a-torkian@basu.ac.ir