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Geothermobarometry of Quartz Crystals in the Intrusive bodies of Almogholagh Batholith, (Hamedan)

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Abstract: Considering the high resistance of quartz against stress and alteration, this mineral was chosen for Geothermobarometry in Almogholagh intrusive masses. To determine the temperature and pressure of crystallization of quartz, the amount of Ti contained in the quartz was measured by Electron Microprobe –Analyzer method and then, the pressure and temperature of crystallization of analyzed points were calculated. The growth and crystallization temperature range of quartz was determined using the P-T diagrams were drawn and contoured. The results show that the negative effects of stress and active fluids on the calculated crystallization temperature can be reduced by contouring. Moreover, in this study, it was found that quartz crystals of intermediate-to-basic rocks and the acidic rocks have been crystallized in a temperature range of 683 to 757 °C and 667 to 741 °C respectively. The examination of fluid inclusions in quartz veins by heating and freezing stage microscope showed that silicic veins in intrusive masses and in the immediate adjacent rock have been formed at temperatures between 134 to 255 °C.

Keywords: *Geothermometry; Fluid inclusions; Geobarometry; Quartz; Almogholagh; Hamean.*

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