Determination of tectonomagmatic environment of volcanic and
subvolcanic rocks in North of Shahrekord by amphiboles
geothermobarometry

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Abstract: On the basis of geothermobarometric calculations, amphiboles in volcanic and
subvolcanic rocks belong to Upper Jurassic volcanism of Sanandaj-sirjan zone in north of
Shahrekord. Using Hamarstrom ,Schmidt, Johnson - Rutherford and Hollister methods,
amphiboles have crystallized about 635 to 715 °C and 2.68 to 7.5 kbar at the depth about 17 to
25 km. The result of calculations has moderate accuracy. The lower FeT/ (Fe + Mg) ratio in
amphiboles is characteristic of calc-alkaline magma suites. Calculated temperatures, pressures
and depths for amphiboles is coincide with a subduction tectonical environment. The
maximum depth of crystallization of amphiboles is 25km and subduction angle is lower than
45 km on the basis of 35 km distance between this volcanic belt and main Zagros fault. Al⁴⁺
measures of amphiboles are higher than 1.5 that indicate an island arc suite.The presence of
this old island arc had predicted in Zagros orogenic belt.

Keywords: Jurassic Volcanism, Sanandaj-sirjan zone, Tectonomagmatic, Geothermobarometry,
Amphibole.