

Insights from Zircon Morphology and Geochemical Signatures of Ghaleh-Dezh granitic pluton, Azna

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Abstract: Zircon is a tetragonal crystal and records different episode(s) of geology in external morphology and internal textures. Factors affecting the shape of the zircon crystals are the composition, possibly the temperature of the crystallization and water content in magma. The zircon typology of the Ghaleh-Dezh granite mostly introduces the fields P5 in classification of Pupin (1990), therefore, show mantle source for the granite. The dominant morphology of the zircon grains reveals a strong dominance of {100} prisms and {101} pyramids over {110} prisms and {211} pyramids. The dominant morphology shows high alkalinity, the temperature of crystallization about 850 °C and dry alkalic nature for the granite. Absent of hydrozircon overgrowth indicate dry magma. Also, the Zr saturation temperature based on zircon solubility reflects a mean temperature of 835 °C. All of information is corresponded by petrography and geochemical evidences and also with a-type granitic magma that has mantle and crust sources.

Keywords: *zircon morphology, A-type granite, alkalinity, Azna*