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## **Advanced argillic alteration in the Karkas Mountain, Central Iran**

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Karkas Mountain is located 85 kilometers North of Isfahan city in Central Iran. The study area exposes a sequence of Cenozoic magmatic rocks of calc-alkaline series. This sequence is a part of a long volcano-plutonic belt in Iran (Uroumia-Dokhtar Volcanic Belt). Some hydrothermal alterations occur in the volcanics of the study area. In northern parts of area there is a thick and widespread sequence of volcanic and pyroclastic rocks with some tuffaceous sediments, which builds up the Karkas Mountain. Some volcanics in this area are subjected to hydrothermal alteration including kaolinitization and alunization. The altered rocks are characterized by an assemblage of alunite, kaolinite and quartz, which is typical of advanced argillic alteration. Geochemical results suggest that the alunite is a solid solution between alunite  $[K Al_3 (SO_4)_2 (OH)_6]$  and natroalunite  $[Na Al_3 (SO_4)_2 (OH)_6]$ . The alunite formed at a higher temperature is usually high in sodium content [1]. These samples also contain minor amounts of  $P_2O_5$ . The occurrence of phosphate and/or aluminum - phosphate in the fine grained alunite is a unique attribute of advanced argillic alteration in a magmatic hydrothermal environment [2] (Rye and Bethke 1992). Mineralogical study suggests that the hydrothermal alteration in this area occurs in a magmatic hydrothermal environment.

[1] Stoffregen, R., (1987) *Econ. Geol.* **82** 1575-1591. [2] Rye, R. O., Bethke, P. M. (1992) *Econ. Geol.* **87** 225-262.