Mineral chemistry of garnets in the Kaleybar alkaline igneous intrusion, NW Iran

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Abstract: The Kaleybar alkaline igneous intrusion contains fine- to coarse-grained, anhedral to euhedral brown garnets. Most of the garnets are zoned. Generally, they occur in foid-bearing leucocratic rocks and the phenocrysts typically have analcime inclusions. According to mineral chemistry, the garnets of Kaleybar are Ti-andradites and melanites. The chemical zoning is characterized by a decrease in mole percent grossular, almandine, and spessartine and an increase in andradite from core to rim. On the basis of the present data, it can be concluded that the garnets in the Kaleybar intrusion are in the primary igneous phase that formed during the late magmatic stage and Ti-Si exchange in the tetrahedral site is the main substitution.

Keywords: igneous garnet, mineral chemistry, foid syenite, Kaleybar.

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