

## Genesis of garnets in the granitoid intrusion of Dehnow, NW Mashhad

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**Abstract:** The granitoid intrusions of Dehnow, which is located in northwest of Mashhad in immediate contact with garnet-rich hornfels, contain large crystals of garnets. They provide an excellent opportunity to study the effect of host rocks in contamination of a garnet-bearing granitoid magma. The garnet crystals contain abundant inclusions that are indicative of igneous phases and are arranged in a circular pattern in crystal. Biotite and hornblende-rich rim around garnet crystals show that the garnets are not in equilibrium with the host magma and is replaced by ferromagnesian phases of the granite magma. Dehnow granitoids are metaluminous in nature. As normally metaluminous magmas have not enough aluminum for garnet stability, it seems that these garnets are peritectic crystals and formed as a result of heterogeneous melting of xenocrysts and xenoliths derived from host rocks.

**Keywords:** *granitoid intrusion; Dehnow; contamination; peritectic crystals.*

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