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Effect of whole rock chemistry on the crystal size distribution of garnet in metapelites, comparison of Shahindezh schist with Dorbeh hornfelses

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Abstract: The purpose of this study is to explore the influence of whole rock chemistry of metamorphic protolith on the crystal size distribution curve of garnet in metapelites. With this aim, perfect mosaical photograph from two groups of metapelites have been prepared: regional (Shahindezh schists) and contact (Dorbeh Oshnavieh aureole) metamorphic rocks image processed and their patterns illustrated. They show that the nuclei numbers in the hornfelses are one fourth of schists, but when they start to grow, it is more than 40 times. These content in addition to high degree of overstepping during regional poly-phase metamorphism, show the important role of effective water fluid presence at the contact aureole and inhibitor role of it at nucleation which help ion transportation on the nucleation sites. Considering the similar composition of garnet in two groups (almanden), it is the symptom of suitable whole rock composition of hornfelses per schists to garnet grew.

Keywords: *crystal size distribution; garnet; nucleation and growth; matapelite; whole rock chemistry.*

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