

## **The oscillatory zoning in grandite garnet from Khao Phu Kha, Lop Buri, Central Thailand.**

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### **ABSTRACT**

Oscillatory zoning in skarn garnet from Khao Phu Kha area, Lop Buri, Central Thailand, preserves a record of the temporal evolution of contact metasomatism. Garnets with oscillatory zoning are small (0.5-3 mm in diameter) euhedral crystals. They contain mm-scale oscillatory zoning of varying grossular-andradite composition (mole % number of andradite = 45.35 to 98.32). The zoning indicates that garnet was developed during early metasomatism involving diorite intrusion and Permian limestone. During this metasomatic event, Al, Fe, and Si in the fluid reacted with Ca in the carbonate rocks to form grandite garnet. The zoned data were collected by electron microprobe and back-scattered electron images. Detailed electron microprobe line profile and small-area compositional maps of zoned garnet favours crystal growth process for the zoning formation. The grandite garnet displays Fe-rich core with oscillatory zoning at rim. The zoning at the edge is relatively high in Al while Fe content decreases toward the rim. A change in fluid composition during growth may cause the garnet to stop growing temporarily or keep growing but at a much slower rate allowing the Al to precipitate rather than Fe. The fluctuation of the fluid composition could be internally and/or externally controlled.

**Keywords :** oscillatory zoning, grandite garnet, skarn