

Textural sector zoning in garnet: A result of pseudomorphic replacement of carbonates

Rachit Parihar*, Kamal Lochan Pruseth and Dewashish Upadhyay

Department of Geology and Geophysics, Indian Institute of Technology, Kharagpur-721302, India

(*correspondence: rachit.parihar@gmail.com)

Texturally sector zoned garnets (TSZG) are marked by parallel inclusions in radiating pyramidal sectors. The inherent directionality is enigmatic as garnet is isotropic and the faces of such garnets are all identical. The currently accepted model for their formation invokes faster lateral than outward growth of fine radiating plates of a garnet nucleus in the absence of deviatoric stresses [1]. We have traced the complete sequence of development of TSZG in calc-biotite schists from Sindesar-Khurd, Rajasthan, India (Fig. 1A). From detailed petrographic examination, we propose that TSZG formed by replacing Mn-rich calcite, the required directionality being provided by the anisotropy in the calcite structure (Fig. 1B). The TSZG grows by replacing either large calcite crystals along their cleavage or grains with particular crystallographic orientation in a tectonically pre-aligned matrix.

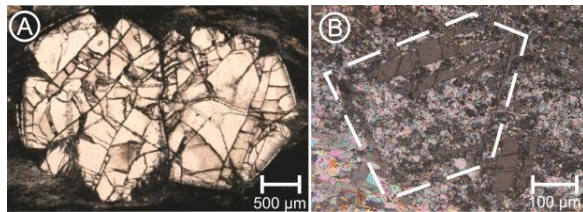


Fig.1. Twin texturally sector zoned garnet (A), garnet sector forming within carbonate matrix (B).

[1] Rice & Mitchell (1991), *Mineral. Mag.* **55**, 379–396.