

ANOMALOUS GRANDITE GARNET FROM BĂIȚA BIHOR, ROMANIA

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Garnets are expected to crystallize in the cubic Ia3d space group. Many of the calcium garnets formed during contact metamorphism or in hydrothermal environments proved to be optically anisotropic. Mostly the intermediate members of the andradite-grossular series reveal anomalous birefringence, meanwhile the end-members are expected to be optically isotropic (SHTUKENBERG *et al.*, 2002).

The analysed samples are postmagmatic products of a lamprophyric intrusion from Băița Bihor. Compositionally they are close to the pure andradite member of grandite solid solutions. The optical anisotropy is mostly related to zonation with oscillatory zoning of the Fe³⁺/Al³⁺ ratio. Additionally, there are minor anisotropic areas in pure andradite, too.

Although the anisotropy seems to be proportional to the Al content, the microprobe did not reveal an exact relationship.

Beside the expected cubic structure (Ia3d) X-ray powder diffraction showed also a triclinic (I1) component in the studied samples.

TEM studies also proved a lower than Ia3d symmetry. In accordance with the published interpretations, the origin of birefringence is explained by the Fe³⁺/Al³⁺ ordering in the octahedral position.

SHTUKENBERG, A. G., POPOV, D. Yu. & PUNIN, Yu. O. (2002). Mineral. Mag., 66: 275-286.