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Chemická zonálnosť Ti-andraditového granátu v Ca-skarne z oblasti Magnetový vrch pri Tisovci (Slovenská republika)

Chemical zoning of Ti-andradite garnet in Ca-skarn from the Magnet hill area near Tisovec (Slovak Republic)

Peter Ružička[1)]*, Pavol Myšľan [1)], Martin Števko[2, 3)] a Sergii Kurylo[4)]

*[1)]Katedra mineralógie, petrológie a ložiskovej geológie, Prírodovedecká fakulta, Univerzita Komenského v Bratislave, Ilkovičova 6, Mlynská dolina, 842 15 Bratislava, Slovenská republika; *e-mail: peter.ruzicka@uniba.sk*
[2)]Ústav vied o Zemi, Slovenská akadémia vied, Dúbravská cesta 9, 840 05 Bratislava, Slovenská republika
[3)]Mineralogicko-petrologické oddělení, Národní muzeum, Cirkusová 1740, 193 00 Praha 9 - Horní Počernice, Česká republika
[4)]Ústav vied o Zemi, Slovenská akadémia vied, Ďumbierska 1, 974 11 Banská Bystrica, Slovenská republika

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Abstract

Analyzed garnets from the Magnet hill area near Tisovec (Slovak Republic) are part of a Ca-skarn mineral association consisting of diopside, clinochlore and calcite. Compositionally they correspond to Ti-rich andradite ($Adr_{50.9-73.7}$) with minor grossular ($Grs_{3.8-44.5}$) and schorlomite ($Sch_{0.5-41.5}$) components. Garnets contain up to 13 wt. % TiO_2 and in all of them $^{Y}Fe^{3+}>{}^{Y}Ti$ ratio prevails. Both sector and oscillatory chemical zoning were observed, which is primarily caused by variable distribution of Ti contents within individual garnet crystals. The three principal zones were distinguished in BSE imaging. The brightest are Ti-enriched zones with Ti content ranging from 0.85 to 0.50 *apfu*. Titanium gradually decreases in transitional zone (0.17 - 0.40 *apfu*) and reaches the minimum values in the dark zones (0.01 - 0.13 *apfu*). In the Ti-enriched zones the content of Si^{4+} and Al^{3+} is decreased due to substitution of Ti^{4+} and Fe^{3+} and assumed hydrogarnet substitution $(SiO_4)^{4-} \leftrightarrow (O_4H_4)^{4-}$.

Key words: *Ti-andradite, Ca-skarn, Magnet hill, Tisovec, Slovak Republic*

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