

Titanit v horninách západního granitoidového komplexu brněnského masivu

Titanite in rocks from the Western Granitoid Complex of the Brno Massif

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Abstract

Paragenetic and chemical variability of minerals from Western Granitoid Complex of the Brno Massif demonstrate wide spectrum of processes that lead to the formation of titanite in metamorphic and igneous rocks. Titanite is a common accessory or secondary mineral in amphibole-biotite to biotite granodiorites, biotite granites and also in metamorphic xenoliths or mafic enclaves in granitoids. Primary, fluorine-poor titanite in granodiorites and associated diorite to gabbro (mafic) enclaves reflects magma-mixing processes. Magmatic titanite from granitoids contains elevated content of Ba (up to 0.03 *apfu*). Amphibolite and diorite to gabbro contains secondary titanite partially replacing ilmenite. Titanite from the metamorphic enclaves of calc-silicate rocks is characterized by elevated content of F. Exchange vector $\text{Al}(\text{F},\text{OH})_{-1}(\text{TiO})_{-1}$ characterizes the main substitution in titanite from skarnoids, while in other calc-silicate rocks titanite composition is dominated by substitution $(\text{Al},\text{Fe}^{3+})(\text{F},\text{OH})_{-1}(\text{TiO})_{-1}$. Biotite granites contain only secondary titanite as a product of biotite chloritization.

Key words: titanite, microchemistry, calc-silicate rocks, granitoids, gabbro, compositional evolution, Brno Massif, Czech Republic