„Oxy-dravit“ z turmalinitů krkonošsko-jizerského krystalinika

„Oxy-dravite“ from tourmalinites of the Krkonoše-Jizera Crystalline Massif

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Abstract

Tourmalinites (Tu+Qtz+Ms+Chl±Grt) from the Krkonoše-Jizera Crystalline Massif form stratiform layers hosted in mica schists (Ms+Qtz+Grt+Chl±Tu±Bt). The tourmaline usually exhibits three compositional domains. The oldest Mg-rich tourmaline (Mg/(Mg+Fe) = 0.81 - 0.99) with fine-grade zoning volumetrically predominates. Mg-rich tourmaline is replaced on the rim by schorl-dravite (Mg/(Mg+Fe) = 0.51 - 0.69), and locally in muscovite rich layers is partly to fully replaced by tourmaline following trend between schorl-dravite and foitite-magnesio-foitite (Mg/(Mg+Fe) = 0.42 - 0.65). The volumetrically dominant Mg-rich tourmaline is alkali (0.59 - 0.85 *apfu* Na; 0.04 - 0.39 *pfu* ^{X}vac; 0.03 - 0.19 *apfu* Ca), enriched in Al (6.14 - 7.09 *apfu*), and calculated $^{W}O^{2-}$ (0.25 - 0.87 *apfu* O). It typically follows trend along a join between „oxy-dravite” and dravite. „Oxy-dravite“ (+ oxy-schorl) molecule (average 53 %) usually predominates over dravite (+schorl) molecule (average 23 %). The most prominent substitution is represented by the exchange vector $Al^{3+}O^{2-}$ $(Mg,Fe)^{2+}_{-1}(OH)^{-1}_{-1}$. Magnesio-foitite (+ foitite) molecule varies between 4 - 39 % (average 16 %). Positive correlation between F and Ca indicates that F entered into the tourmaline structure via fluor-uvite component (4 - 19 %; average 8 %). Mg-rich tourmaline is an early formed, premetamorphic, and genetically related to sulfide deposit formations in closely associated amphibolites. Major and trace element composition indicates its formation during interaction of Al, Mg-rich vulcanosedimentary protolith with B-rich fluids. On the contrary, both generations of later schorl-dravite are interpreted to be metamorphic.

Key words: *„oxy-dravite“, dravite, chemical composition, tourmalinite, Krkonoše-Jizera Crystalline Massif, Northern Bohemia*