PŮVODNÍ PRÁCE/ORIGINAL PAPER

# Asociace Nb-Ta-(Ti-REE) oxidických minerálů v pegmatitu Maršíkov - Lysá hora v Hrubém Jeseníku, Česká republika

## Association of Nb-Ta-(Ti-REE) oxide minerals in the Maršíkov - Lysá hora pegmatite in Hrubý Jeseník Mountains, Czech Republic

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Chládek Š., Zimák J. (2016) Asociace Nb-Ta-(Ti-REE) oxidických minerálů v pegmatitu Maršíkov - Lysá hora v Hrubém Jeseníku, Česká republika. *Bull. mineral.-petrolog. Odd. Nár. Muz. (Praha) 24, 1, 25-32. ISSN 1211-0329.*

### Abstract

Accessory Nb-Ta-Ti-REE oxide minerals were detected in recently described granitic pegmatite of the beryl-columbite subtype at Maršíkov - Lysá hora, northern Moravia, Czech Republic. Primary magmatic mineral assemblage is represented by columbite-group minerals, rutile and aeschynite-group minerals in the blocky and albite (cleavenlandite) textural-paragenetic units. Columbite-(Fe) is the most common Nb-Ta mineral whereas rare columbite-(Mn) occurs only in the cleavenlandite unit. Columbite-group minerals shows a lower degree of fractionation; Ta↔Nb and Mn↔Fe are dominant major element substitution mechanisms, minor Ti enters into the columbite lattice via rutile substitution: $3Ti^{4+} \leftrightarrow (Fe,Mn)^{2+} + 2(Nb,Ta)^{5+}$. Very rare aeschynite-(Ce) occurs in association with rutile and in Nb-rich rutile. The magmatic Nb-Ta-Ti assemblage underwent a significant transformation during post-magmatic to hydrothermal stage of the pegmatite evolution. Breakdown products of primary precursors are minerals of pyrochlore supergroup, they occur on the tiny cracks of the zonal columbite-(Fe) and rutile. Secondary phases of betafite and pyrochlore group-minerals show significant uranium enrichment. High contents of Si and Al in the pyrochlore-supergroup minerals are consistent with their hydrothermal-metasomatic origin and crystallization of late alpine-type alpine paragenesis on cracks in the pegmatite body.

***Key words:*** *beryl-columbite pegmatite, Nb-Ta minerals, columbite group, rutile, aeschynite-(Ce), pyrochlore supergroup, pegmatite evolution, Maršíkov, Czech Republic*

*Obdrženo: 20. 10. 2015; přijato: 15. 4. 2016*