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PŮVODNÍ PRÁCE/ORIGINAL PAPER

Krystalograficky orientovaný srůst rutilu a ilmenitu a doprovodné minerály z Pasek nad Jizerou (krkonošsko-jizerské krystalinikum)

Crystallographically oriented intergrowth of rutile and ilmenite and associated minerals
from Paseky nad Jizerou (Krkonoše-Jizera Crystalline Complex, Czech Republic)

ZDENĚK DOLNÍČEK* A JANA ULMANOVÁ

*Mineralogicko-petrologické oddělení, Národní muzeum, Cirkusová 1740, 193 00 Praha 9;
e-mail: zdenek.dolnicek@nm.cz

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Abstract

A detailed mineralogical study of a sample of quartz gangue containing macroscopically visible acicular rutile, which was collected in area of former Cu(-Ag) ore deposit NE from Paseky nad Jizerou, yielded a number of mineralogical findings. The mineralization is bound to strongly elongated quartz lenses, arranged conformably with schistosity of host phyllite of the Krkonoše-Jizera Crystalline Complex. Rutile is polysynthetically lamelled and compositionally zoned, with elevated contents of Fe (0.004 - 0.015 *apfu*), Nb (0.001 - 0.004 *apfu*), V (0.001 - 0.002 *apfu*) and W (0.000 - 0.006 *apfu*). It contains microscopic platy inclusions of ilmenite, which are regularly distributed in up to three crystallographic directions (probably cleavage planes) regardless of compositional zoning of host rutile. In addition, sporadic occurrence of aggregates composed of fluorapatite, *phengitic* muscovite and clinocllore was found too. The studied mineralization has metamorphic-secretory origin. The observed microstructural arrangement of inclusions of ilmenite in rutile host is very uncommon worldwide. With respect to evidently LP-LT origin of mineralization, we interpret its origin not in terms of exsolution but in terms of younger hypogene alteration of pre-existing rutile by fluids with relatively low Eh. The activity of such "suitable" fluids can be illustrated during crystallization of chlorite, which was formed at temperatures 137 - 160 °C and at log fO_2 between -49.2 and -53.1 bar.

Key words: Rutile, ilmenite, phyllite, metamorphic remobilization, Krkonoše-Jizera Crystalline Complex, Poniklá Group, Bohemian Massif

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