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Minerály „ottrélitových“ břidlic u Vápenného Podola v Železných horách (Česká republika)

Minerals of the „ottrélite“ schists from Vápenný Podol in the Železné Hory Mts. (Czech Republic)

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Abstract

From the belt of Ordovician metapelites in the Železné hory Mountains, ottrélite was described in 1882. Although the original paper stated the virtual absence of manganese, many papers and books from the 20th century copied just the original name of the mineral, without respect to its chemistry. Since the quantitative analysis was not available, we decided to revise this occurrence. Material newly collected in the vicinity of the Bučina Hill (606 m a.s.l.) SW from the Vápenný Podol village fits the original description, i.e. felsic rocks rich in quartz and illite-muscovite, with significant schistosity and abundant porphyroblasts of dark green mineral of the chloritoid group up to 3 mm large. Rietveld refinement of powder X-ray diffraction using different input structural models gave the best fit (the lowest R_{Bragg}) for the triclinic chloritoid of *P*-1 space group. Unit cell parameters are as follow: a = 5.483(1), b = 5.479(1), c = 9.1476(5) Å, α = 83.452(10)°, β = 76.639(11)°, γ = 59.993(15)°. Its average formula from seven WDS spots is $(Fe_{0.83}Mg_{0.17}Mn_{0.01})_{\Sigma 1.01}Al_{1.97}(SiO_4)_{\Sigma 1.02}O_{0.92}(OH)_{2.00}$, and therefore must be classified as a chloritoid. As accessory minerals in the schist, we found rutile crystals and aggregates, prismatic zircons, a mineral from the chlorite group, and paragonite. Attention was paid to the unexpected occurrence of possibly primary rare grains of xenotime-(Y) up to 10 μm with average formula $(Y_{0.71}Sm_{0.01}Gd_{0.03}Tb_{0.01}Dy_{0.07}Ho_{0.01}Er_{0.05}Tm_{0.01}Yb_{0.04}Lu_{0.01})_{\Sigma 0.96}(P_{1.02}Si_{0.01})_{\Sigma 1.03}O_{4.00}$ and more common rhabdophane-(Ce), which forms acicular, partly skeletal crystals in cavities, possibly after leached apatite. Its average formula is $Y_{0.01}La_{0.18}Ce_{0.40}Pr_{0.04}Nd_{0.15}Sm_{0.03}Eu_{0.01}Gd_{0.04}Al_{0.02}Ca_{0.18}Fe_{0.04}Th_{0.02})_{\Sigma 1.12}(P_{0.95}Si_{0.01}S_{0.01})_{\Sigma 0.97}O_{4.00}\cdot 0.97\ H_2O$. We suggest using the term “chloritoid schist” for these metapelites formed at the contact of Middle to Late Ordovician graphite shales with the intrusion of the Variscan biotite granite of the Železné Hory Mts. Plutonic Complex.

Key words: *chloritoid, rhabdophane-(Ce), xenotime-(Y), Ordovician, Železné Hory Mountains, Czech Republic*

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