

Mineralogická charakteristika asociácie sekundárnych karbonátov vápnika zo Španej Doliny - prvý nález monohydrokalcitu z rudných ložísk na území Slovenska

Mineralogical characteristics of the secondary calcium carbonates association from the Špania Dolina - The first occurrence of monohydrocalcite in ore deposits in Slovakia

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Abstract

Monohydrocalcite (MHC) is considered to be rare mineral in geological settings due to its metastability. It was recently found in old mine gallery at famous abandoned copper deposit - Špania Dolina (central Slovakia) which is popular among mineral collectors for well developed oxidation zone with large amount of secondary minerals. MHC is associated with other carbonates - calcite, aragonite and vaterite. MHC shows increased Cu content (up to 0.01 *apfu*) and slight enrichment in SO₃. Empirical formula of MHC can be written as (Ca_{0.99}Cu_{0.01})CO₃·H₂O. The unit-cell parameters of MHC refined for the trigonal space group *P*3₁ are *a* 10.554(1) Å, *c* 7.5537(8) Å, *V* 728.68(18) Å³. Raman spectroscopy confirmed water content in MHC structure and revealed presence of vaterite. Raman bands of the O-H stretching vibrations occurred in MHC spectra between 3100 - 3500 cm⁻¹. MHC from Špania Dolina deposit can be product of meteoric waters enriched in Cu ions which serve as catalysator for MHC crystallization rather than calcite. TOC content up to 0.28 wt. % in MHC suggested presence of some organic mater during MHC crystallization.

Key words: monohydrocalcite, secondary minerals, Špania Dolina, Piesky adit, Western Carpathians

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