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Zhenruit ze štoly 5. květen ve Vrchoslavi v Krušných horách (Česká republika)

Zhenruite from the 5. květen adit at Vrchoslav in the Krušné hory Mts. (Czech Republic)

Jiří Sejkora[1)]*, Petr Pauliš[1,2)], Petr Fuchs[3)] a Ondřej Pour[4)]

[1)]Mineralogicko-petrologické oddělení, Národní muzeum, Cirkusová 1740, 193 00 Praha 9 - Horní Počernice;
**e-mail: jiri.sejkora@nm.cz*
[2)]Smíškova 564, 284 01 Kutná Hora
[3)]Bílinská 3, 415 01 Teplice
[4)]Česká geologická služba, Geologická 6, 152 00 Praha 5

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Abstract

Very rare hydrated molybdenum oxide, mineral zhenruite, was found in samples from the quartz - aplite vein with molybdenite at the abandoned adit 5. květen, Vrchoslav near Krupka, Krušné hory Mountains, northern Bohemia, Czech Republic. Zhenruite forms crystalline coatings on an area of up to several cm^2 on quartz gangue with jordisite and molybdenite, which are composed of intergrown hemispherical aggregates up to 0.2 mm in size. These aggregates are composed of flattened needle-like crystals, radially or fan-shapedly arranged; the length of individual crystals ranges up to 0.1 mm and their cross-section is usually around 2 × 5 μm. Zhenruite crystals are translucent to transparent, colourless to very light bluish, with a vitreous lustre; the crystalline aggregates are then opaque, whitish, light or even pastel blue. Zhenruite is monoclinic, space group $P2_1/m$, the unit-cell parameters refined from X-ray powder diffraction data are: *a* 9.8607(10), *b* 3.7051(5), *c* 7.1122(6) Å, β 102.425(10)° and *V* 249.12(5) $Å^3$. Results of semiquantitative chemical analysis (EDS) confirm the presence of Mo and O in the studied mineral. Raman spectroscopy documents the identity of studied mineral with zhenruite from type locality and presence of molecular water and Mo octahedra in the crystal structure of zhenruite. The origin of zhenruite in association with alunogen is interpreted as product of (sub) recent supergene alteration of jordisite and molybdenite in quartz gangue in environment of abandoned mine space.

Key words: *zhenruite, powder X-ray diffraction data, unit-cell parameters, chemical composition, Raman spectroscopy, Vrchoslav, Czech Republic*

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