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Celsian z Chvaletic u Přelouče (Česká republika)

Celsian from Chvaletice near Přelouč (Czech Republic)

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Abstract

The mineral association of Ba-rich feldspars, amphiboles, spessartine and pyrite in grey to greyish black matrix containing floating lenses of carbonates (rhodochrosite to siderite) was studied on historical samples from now abandoned deposit Chvaletice near Přelouč, central Bohemia (Czech Republic). The prevailing celsian forms dark grey aggregates up to 2 mm in size, which are distinctly zonal in BSE images due to variations in Ba contents in the range 0.48 - 1.05 *apfu*. Celsian is monoclinic, space group *I*2/*c*, with the unit-cell parameters refined from X-ray powder diffraction data: *a* 8.6326(18), *b* 13.0533(17), *c* 14.415(3) Å, β 115.151(13)° and *V* 1470.3(7) Å^3. The less frequent *hyalophane* occurs as domains up to 50 μm in size in celsian aggregates and contains dominant K (0.47 - 0.55 *apfu*) accompanied by contents of Ba (0.33 - 0.43 *apfu*) and minor Na (up to 0.14 *apfu*). Amphiboles form fibrous aggregates up to few mm in size and their chemical composition corresponds to Mn-rich tremolite or actinolite and more rarely clino-suenoite. Non-zoned spessartine ($Sps_{78-83}Grs_{5-12}Alm_{4-5}$*F-Kat*$_{3-4}$Ti-$Grs_{0-2}Prp_{0-1}Glm_{0-1}$) occurs as euhedral to subhedral grains up to 100 μm (in celsian) or subhedral to anhedral grains and aggregates up to 500 μm (in amphiboles). The observed mineral association with celsian was formed during the metamorphic reworking of the original stratiform mineralization, the composition of which included baryte, Mn minerals, and sulfides in addition to siliciclastic material.

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

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