

Semseyit a fizélyit z polymetalického ložiska Bohutín u Příbrami, Česká republika

Semseyite and fizélyite from the base metals ore deposit Bohutín near Příbram (central Bohemia, Czech Republic)

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LITOCHEB J., SEJKORA J., LITOCHEBOVÁ E., JINDRA J. (2008): Semseyit a fizélyit z polymetalického ložiska Bohutín u Příbrami, Česká republika. - *Bull. mineral.-petrolog. Odd. Nár. Muz. (Praha)* **16/1**, 11-16. ISSN: 1211-0329.

Abstract

At mine dump of mine Štefánik, the ore deposit Bohutín near Příbram, central Bohemia, Czech Republic, rich aggregates of semseyite crystals with inclusions of fizelyite and galena were found. Semseyite forms steel grey tabular crystals up to 1.5 mm in length with considerable metallic luster growing to rich aggregates in the cavities of quartz - sphalerite - calcite ore gangue. In reflected light it is slightly yellowish grey with distinct bireflectance (bluish green - grey) and anisotropic with rotation tints in shades of greyish blue to greyish brown. It has a mean VHN (20 g load) of 195 (177-211) kp/mm² with K_{VH} 1.15. Semseyite is monoclinic, space group $C2_1/c$, the unit-cell parameters refined from X-ray powder data are: a 13.643(5), b 11.972(3), c 24.607(8) Å, β 106.24(4)°, V 3859(2) Å³. Chemical analyses (mean of 9 points) yielded the average composition Ag 0.03, Pb 52.18, Sb 27.85, Bi 0.02, As 0.05, S 19.36, total 99.50 wt. %, corresponding to $(Pb_{8.82}Ag_{0.01})_{\Sigma 8.83}(Sb_{8.01}As_{0.02})_{\Sigma 8.03}S_{21.14}$ on the basis of 38 *apfu*. Fizélyite forms abundant inclusions up to 45 x 8 µm in size in semseyite aggregates. The average results of chemical analyses (mean of 5 points) are: Ag 7.79, Fe 0.10, Pb 38.20, Cd 0.27, Cu 0.03, Sb 33.04, Bi 0.01, As 0.06, S 20.32, total 99.82 wt. % corresponding to $(Pb_{13.90}Cd_{0.18}Fe_{0.14})_{\Sigma 14.22}(Ag_{5.44}Cu_{0.03})_{\Sigma 5.47}(Sb_{20.46}As_{0.06}Bi_{0.01})_{\Sigma 20.53}S_{47.78}$ on the basis of 88 *apfu*. The calculated values $N_{chem} = 4.34$ (4.27 - 4.42) and %And = 62.06 (61.52 - 63.16) are given. Chemical compositions of both studied sulfosalts are compared with published data. The succession of origin of minerals in the studied samples is as follows: quartz IV → galena II → sphalerite IV → semseyite → fizélyite → calcite II.

Key words: semseyite, fizélyite, X-ray data, chemical composition, the Bohutín ore deposit, the Březové Hory ore district, central Bohemia, Czech Republic