Semseyite Pb$_9$Sb$_8$S$_{21}$

Crystal Data: Monoclinic. Point Group: $2/m$. Crystals tabular \{001\}, to 2 cm, or prismatic \{010\}; elongated along \{011\} and \{201\}; commonly twisted and composite; also rossettelike groups.


Optical Properties: Opaque. Color: Gray to black; in polished section, white with a pale green tint. Streak: Black. Luster: Metallic, tarnishes to dull. Optical Class: Biaxial. Pleochroism: Very weak, in yellow green to darker, grayish green. Anisotropism: Strong. R$_1$–R$_2$: (400) 38.6–44.5, (420) 38.3–44.2, (440) 38.0–43.9, (460) 37.7–43.6, (480) 37.4–43.3, (500) 37.2–43.1, (520) 37.0–42.8, (540) 36.7–42.5, (560) 36.4–42.2, (580) 36.0–41.7, (600) 35.4–41.1, (620) 34.9–40.4, (640) 34.3–39.8, (660) 33.6–39.1, (680) 32.9–38.4, (700) 32.2–37.6

Cell Data: Space Group: C$2/c$. $a$ = 13.603(3) $b$ = 11.936(8) $c$ = 24.435(7) $\beta$ = 106.047(10)$^\circ$ Z = 4

X-ray Powder Pattern: Herja, Romania. 3.260 (100), 3.81 (90), 2.949 (90), 2.857 (80), 3.351 (70), 3.88 (60), 2.152 (50)

Chemistry: (1) Pb 51.88 52.24 53.10 Fe trace 0.02 (2) Sn 0.17 Mn 0.01 (3) Ag 0.56 0.07 Sb 27.20 27.99 27.73 (4) Cu 0.11 0.01 Bi 0.09 (5) Zn 0.01 S 19.73 19.92 19.17 (6) Cd 0.10 insol. 1.15

Total 100.63 100.63 100.00

(1) Herja, Romania; corresponds to (Pb$_8$Sb$_7$.55Ag$_{0.18}$Cu$_{0.06}$)$_{Σ=8.79}$ Sb$_{7.62}$S$_{21.00}$. (2) Chichibu mine, Japan; by electron microprobe, average of 23 analyses; corresponds to (Pb$_8$.52Sn$_{0.05}$Cd$_{0.03}$Ag$_{0.02}$Cu$_{0.01}$Zn$_{0.01}$Fe$_{0.01}$Mn$_{0.01}$)$_{Σ=8.66}$ (Sb$_{7.77}$Bi$_{0.02}$)$_{Σ=7.79}$ S$_{21.00}$. (3) Pb$_9$Sb$_8$S$_{21}$.

Occurrence: In hydrothermal veins formed at medium temperature.

Association: Sorbyrite, jamesonite, bournonite, zinkenite, guettardite, jordanite, diaphorite, sphalerite, galena, pyrite, chalcopyrite, tetrahedrite, bournonite, arsenopyrite, siderite.

Distribution: In Romania, from Baia Sprie (Felsőbanya) [TL], at Herja (Kisbanya), in the Baia Mare (Nagybanya) district, and from Rodna. In Germany, at Wolfsberg, Harz Mountains, and from the Caspari mine, Arnsberg, North Rhine-Westphalia. From the Les Anglais mine, Massaic, Cantal; Montlucan and Bournac, Montagne Noire, Finistère; Saint-Pons, Alpes-de-Haute-Provence; and elsewhere in France. In Scotland, at the Louisa mine, Glendinning, Eskdale, Dumfries. In Bolivia, at the San José mine, Oruro. From Herminia, in the Julcani district, Peru. At the Brobdignag prospect, near Silverton, San Juan Co., the Argentine Pass area, Clear Creek Co., and near the Maid of Orleans mine, Montezuma district, Summit Co., Colorado, USA. From near Madoc, Ontario, Canada. In the Chichibu mine, Saitama Prefecture, Japan. In small amounts from other occurrences.

Name: In honor of Andor von Semsey (1833–1923), a Hungarian nobleman much interested in minerals.


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