Součekite $PbCuBi(S,Se)_3$

Crystal Data: Orthorhombic, probable. *Point Group:* [$mm2$] (by analogy to bournonite). As anhedral grains, to 0.01 mm, typically filling interstices between lath-shaped crystals of poubaite; also in veinlets. *Twinning:* Very fine polysynthetic.

Physical Properties: Hardness = n.d. VHN = 166–188, 179 average (25 g load). D(meas.) = n.d. D(calc.) = 7.60

Optical Properties: Opaque. *Color:* Lead-gray; in polished section, creamy with a brownish tint. *Luster:* Metallic. *Pleochroism:* Distinct in oil, in creamy brown to pale gray with a bluish tint. *Anisotropism:* Medium strong; pale brown to dark blue-gray.
R_1–R_2: (400) —, (420) 44.3–48.2, (440) 44.2–47.9, (460) 44.1–47.5, (480) 43.7–47.1, (500) 43.9–47.1, (520) 43.8–47.2, (540) 43.7–47.2, (560) 43.6–47.3, (580) 43.5–47.3, (600) 43.5–47.4, (620) 43.5–47.5, (640) 43.4–47.6, (660) 43.6–47.7, (680) 43.4–47.4, (700) 43.4–47.7

Cell Data: *Space Group:* [$Pn2_1m$] (by analogy to bournonite). $a = 8.153(3)$ $b = 8.498(4)$ $c = 8.080(3)$ Z = 4

X-ray Powder Pattern: Oldřichov, Czech Republic.
2.757 (100), 2.717 (100), 4.040 (80), 4.249 (60), 2.019 (60), 3.774 (50), 1.833 (50)

Chemistry:

	(1)	(2)	(3)
Pb	33.86	32.68	31.74
Cu	9.76	9.93	9.97
Bi	31.71	32.41	33.32
Se	14.55	14.55	16.30
Te	0.79	0.51	1.05
S	8.83	9.25	7.83
Total	99.50	99.33	100.21

(1) Oldřichov, Czech Republic; by electron microprobe, corresponds to $Pb_{1.05}Cu_{0.99}Bi_{0.97}(S_{1.77}Se_{1.19}Te_{0.04})_{\Sigma=3.00}$. (2) Do.; by electron microprobe; corresponds to $Pb_{0.99}Cu_{0.98}Bi_{0.98}(S_{1.82}Se_{1.16}Te_{0.02})_{\Sigma=3.00}$. (3) Otish Mountains deposit, Canada; by electron microprobe, average of seven analyses; corresponds to $Pb_{1.00}Cu_{1.03}Bi_{1.04}(S_{1.60}Se_{1.35}Te_{0.05})_{\Sigma=3.00}$.

Occurrence: In hydrothermal quartz-carbonate veins (Oldřichov, Czech Republic); in a vein-type uranium deposit with other tellurides and selenides (Otish Mountains deposit, Canada).

Association: Poubaite, galena, clausthalite, selenian–sulfurian rucklidgeite, uraninite (Oldřichov, Czech Republic); watkinsonite, poubaite, wittichenite (Otish Mountains deposit, Canada).

Distribution: From Oldřichov, near Tachov, Czech Republic [TL]. At the Beregove and Muzhieve deposits, Ukraine. In the Otish Mountains uranium deposit, Quebec, Canada.

Name: In honor of Frantisek Souček (1911–1989), Department of Mineralogy, Charles University, Prague, Czech Republic, and a devoted mineral collector.

Type Material: Charles University, Prague, Czech Republic, 21241; National School of Mines, Paris, France.

References: (1) Čech, F. and I. Vavřín (1979) Součekte, $CuPbBi(S,Se)_3$, a new mineral of the bournonite group. Neues Jahrb. Mineral., Monatsh., 289–295. (2) (1980) Amer. Mineral., 65, 209 (abs. ref. 1). (3) Johan, Z., P. Picot, and F. Ruhlmann (1987) The ore mineralogy of the Otish Mountains uranium deposit, Quebec: skippenite, Bi_2Se_2Te, and watkinsonite, $Cu_2PbBi_4(Se,S)_8$, two new mineral species. Can. Mineral., 25, 625–638.