Cupropavonite $AgPbCu_2Bi_5S_{10}$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Rough platy crystals, to 0.5 mm; commonly as fine lamellar intergrowths exsolved from pavonite.

Physical Properties: Hardness = n.d. VHN = n.d. D(meas.) = n.d. D(calc.) = [7.04]

Optical Properties: Opaque. *Color:* Lead-gray to tin-white; in polished section, white. *Pleochroism:* Weak in air; weak to distinct in oil. *Anisotropism:* Distinct.

R_1–R_2: (400) 45.1–48.2, (420) 45.0–48.8, (440) 45.0–49.4, (460) 44.6–49.8, (480) 44.4–50.2, (500) 43.9–50.0, (520) 43.4–49.1, (540) 43.0–48.2, (560) 42.5–47.5, (580) 42.2–46.9, (600) 42.1–46.4, (620) 42.0–46.4, (640) 41.9–46.2, (660) 41.7–46.1, (680) 41.6–46.0, (700) 41.2–45.6

Cell Data: *Space Group:* $C2/m$. $a = 13.45$ $b = 4.02$ $c = 33.06$ $\beta = 93.50°$ $Z = 4$

X-ray Powder Pattern: Alaska mine, Colorado, USA.
2.892 (vs), 2.257 (vs), 2.193 (vs), 2.118 (vs), 2.019 (vs), 2.007 (vs), 1.8011 (vs)

Chemistry:

	(1)	(2)	(3)	(4)
Ag	5.7	5.9	7.01	5.97
Pb	13.5	13.4	7.65	11.46
Cu	6.2	6.1	7.26	7.03
Bi	56.4	56.8	59.32	57.80
Sb	0.1	0.3		
S	18.0	17.6	18.10	17.74
Total	99.9	100.1	99.34	100.00

(1–2) Alaska mine, Colorado, USA; by electron microprobe, the average corresponding to $Ag_{0.97}Pb_{1.17}Cu_{1.74}Bi_{4.88}S_{10.00}$. (3) Hall's Valley, Colorado, USA; by electron microprobe, corresponding to $Ag_{1.15}Pb_{0.65}Cu_{2.02}Bi_{5.03}S_{10.00}$. (4) $AgPbCu_2Bi_5S_{10}$.

Occurrence: In zoned mesothermal base- and precious-metal veins.

Association: Pavonite, gustavite, cuprobismutite, berryite.

Distribution: In the USA, in Colorado, from the Alaska mine, Poughkeepsie Gulch, near Ouray, San Juan Co. [TL], and at the Missouri mine, Hall's Valley, Park Co.; in the Campbell mine, Bisbee, Cochise Co., Arizona; and from the April Fool mine, Delamar district, Lincoln Co., Nevada. At Stănija and Băiţa (Rézbánya), Romania. In the Waschgang Au–Cu deposit, Goldberg Mountains, Upper Carinthia, Austria. From Saxony, Germany, otherwise undefined.

Name: For its copper, *cuprum*, content, and to stress a similarity with pavonite.

Type Material: University of Pennsylvania, Philadelphia, Pennsylvania, USA, 1124, ("alaskaite").

References: (1) Karup-Møller, S. and E. Makovicky (1979) On pavonite, cupropavonite, benjaminite, and "oversubstituted" gustavite. Bull. Minéral., 102, 351–367. (2) (1980) Amer. Mineral., 65, 206 (abs. ref. 1). (3) Nuffield, E.W. (1980) Cupropavonite from Hall's Valley, Park County, Colorado. Can. Mineral., 18, 181–184. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 128.