

Crystal Data: Tetragonal, pseudocubic. *Point Group:* $\bar{4}2m$. As microscopic grains containing hakite inclusions. *Twinning:* Observed in polished section.

Physical Properties: Hardness = 4–4.5 VHN = 234 (50 g load). D(meas.) = n.d. D(calc.) = 5.82

Optical Properties: Opaque. *Color:* In polished section, pale brownish pink.

Luster: Metallic. *Anisotropism:* Strong, with bright colors in rose and green.

R₁–R₂: (400) 28.9–29.1, (420) 28.4–30.2, (440) 27.9–31.4, (460) 26.9–30.5, (480) 26.5–29.2, (500) 26.1–27.4, (520) 26.0–26.0, (540) 25.6–24.9, (560) 24.8–24.7, (580) 24.3–24.9, (600) 24.1–25.4, (620) 24.1–26.2, (640) 24.5–27.3, (660) 25.5–28.6, (680) 26.4–29.5, (700) 27.6–30.1

Cell Data: *Space Group:* $I\bar{4}2m$ (probable). $a = 5.631(2)$ $c = 11.230(5)$ $Z = 2$

X-ray Powder Pattern: Předbořice, Czech Republic.

3.251 (10), 1.503 (10d), 1.986 (9), 1.697 (8), 1.148 (7), 1.290 (6), 1.408 (5)

Chemistry:

	(1)	(2)
Cu	30.7	30.3
Sb	17.4	19.4
As	1.5	
Se	50.4	50.3
Total	100.0	100.0

(1) Předbořice, Czech Republic; by electron microprobe, corresponds to Cu_{3.01}(Sb_{0.89}As_{0.12})_{Σ=1.01}Se_{3.98}. (2) Cu₃SbSe₄.

Mineral Group: Stannite group.

Occurrence: A product of epithermal hydrothermal mineralization.

Association: Berzelianite, hakite, eskebornite, umangite, naumannite, hematite, clausthalite, ferroselite, klockmannite, chalcopyrite, pyrite, gold, tetrahedrite, uraninite, goethite, calcite.

Distribution: From the Předbořice uranium deposit, near Krásna Hora, Czech Republic [TL].

Name: For François Permingeat (1917–1988), French mineralogist, University of Paul-Sabatier, Toulouse, France.

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

References: (1) Johan, Z., P. Picot, R. Pierrot, and M. Kvaček (1971) La permingeatite Cu₃SbSe₄, un nouveau minéral du groupe de la luzonite. Bull. Soc. fr. Minéral., 94, 162–165 (in French). (2) (1972) Amer. Mineral., 57, 1554–1555 (abs. ref. 1). (3) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 429.