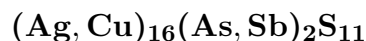


# Arsenpolybasite



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**Crystal Data:** Monoclinic, pseudohexagonal. *Point Group:*  $2/m$ . Thin pseudohexagonal crystals, tabular on {001}, to 6 cm. *Twining:* Twin plane {110}, repeated.

**Physical Properties:** *Cleavage:* Imperfect on {001}. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 2–3 VHN = n.d. D(meas.) = 6.18–6.23 D(calc.) = n.d.

**Optical Properties:** Opaque, translucent in thin fragments. *Color:* Black; dark red in transmitted light. *Streak:* Black. *Luster:* Metallic. *Optical Class:* Biaxial (-). *Pleochroism:* In reflected light, weak. *Orientation:*  $X = c$ ;  $Y = a$ . *Dispersion:* Very strong.  $n = > 2.72$  (Li).  $2V(\text{meas.}) = 22^\circ$  *Anisotropism:* Moderate.  $R_1$ – $R_2$ : n.d.

**Cell Data:** *Space Group:*  $C2/m$ .  $a = 26.08$   $b = 15.04$   $c = 23.84$   $\beta = 90^\circ$   $Z = 16$

**X-ray Powder Pattern:** Synthetic  $(\text{Ag}_{14.32}\text{Cu}_{1.68})_{\Sigma=16.00}\text{As}_2\text{S}_{11}$ . 3.010 (100), 1.8414 (60), 3.081 (40), 2.839 (35), 2.0935 (30), 6.38 (25), 6.02 (25)

<b>Chemistry:</b>	(1)
Ag	71.20
Cu	3.26
Fe	0.38
As	6.87
Sb	0.80
S	17.37
Total	99.88

(1) Freiberg, Germany; corresponding to  $(\text{Ag}_{14.09}\text{Cu}_{1.10}\text{Fe}_{0.14})_{\Sigma=15.33}(\text{As}_{1.96}\text{Sb}_{0.14})_{\Sigma=2.10}\text{S}_{11.57}$ .

**Occurrence:** Formed in silver-bearing hydrothermal veins of low to medium temperature.

**Association:** Pyrargyrite, stephanite, tetrahedrite, acanthite, silver, gold, pyrite, quartz, calcite, dolomite.

**Distribution:** At the Neuer Morgenstern mine, Freiberg, Saxony, Germany [TL]. In Chile, at Quespisiza. From Creede, Mineral Co., Colorado, USA. In the Santo Niño Ag–Pb–Zn vein, Fresnillo district, Zacatecas, Mexico.

**Name:** For the chemical composition and close relation to polybasite.

**Type Material:** Harvard University, Cambridge, Massachusetts, USA, 82633, 110527.

**References:** (1) Frondel, C. (1963) Isodimorphism of the polybasite and pearceite series. *Amer. Mineral.*, 48, 565–572. (2) Harris, D.C., E.W. Nuffield, and M.H. Froberg (1965) Studies of polybasite, pearceite, antimonpearceite, and arsenpolybasite. *Can. Mineral.*, 8, 172–184. (3) Sugaki, A., A. Kitakaze, and T. Yoshimoto (1983) Synthesized minerals of polybasite and pearceite series. *Sci. Rep. Tohoku Univ.*, 15, 461–469.