

**Crystal Data:** Monoclinic. *Point Group:* n.d. As domains intergrown with baumhauerite.

**Physical Properties:** *Cleavage:* One perfect, probably {100}. *Fracture:* Conchoidal.  
*Tenacity:* Brittle. Hardness = 3 VHN = 156–165, average 159. D(meas.) = n.d.  
 D(calc.) = 5.31–5.37

**Optical Properties:** Opaque. *Color:* Steel-gray. *Streak:* Dark reddish brown.  
*Luster:* Metallic.

*Optical Class:* Biaxial. *Anisotropism:* Moderate; brownish gray, greenish gray, very pale bluish gray, pale greenish gray.

R<sub>1</sub>–R<sub>2</sub>: (400) 38.9–41.9, (420) 38.4–41.6, (440) 37.8–41.3, (460) 37.3–40.9, (480) 36.8–40.5, (500) 36.2–40.2, (520) 35.6–39.6, (540) 34.9–39.0, (560) 34.2–38.1, (580) 33.5–37.3, (600) 32.8–36.4, (620) 32.1–35.6, (640) 31.4–34.7, (660) 30.6–34.0, (680) 30.1–33.3, (700) 29.6–32.6

**Cell Data:** *Space Group:* n.d.  $a = 44.74(4)$   $b = 8.477(4)$   $c = 7.910(6)$   $\beta = 93.37(5)^\circ$   
 $Z = \text{n.d.} \text{ ???}$

**X-ray Powder Pattern:** Binntal, Switzerland (close to baumhauerite).  
 3.01 (100), 2.75 (90), 2.28 (90), 4.22 (80), 2.95 (70), 2.73 (70), 3.68 (60)

**Chemistry:**

|       | (1)  | (2)   |
|-------|------|-------|
| Pb    | 46.3 | 44.35 |
| Ag    | 1.4  | 0.25  |
| Hg    |      | 0.3   |
| Tl    |      | 1.85  |
| As    | 26.9 | 20.15 |
| Sb    | 0.5  | 5.45  |
| S     | 24.3 | 24.55 |
| Total | 99.4 | 96.90 |

(1) Binntal, Switzerland; by electron microprobe, corresponding to  $\text{Pb}_{10.62}\text{Ag}_{0.62}(\text{As}_{17.06}\text{Sb}_{0.20})_{\Sigma=17.26}\text{S}_{36.00}$ . (2) Quiruvilca, Peru; by electron microprobe, corresponding to  $\text{Pb}_{10.06}\text{Ag}_{0.12}\text{Hg}_{0.07}(\text{As}_{12.65}\text{Sb}_{2.10}\text{Tl}_{0.43})_{\Sigma=15.18}\text{S}_{36.00}$ .

**Occurrence:** In sugary dolomite (Binntal, Switzerland).

**Association:** Baumhauerite, other lead sulfarsenides, realgar, pyrite, dolomite (Binntal, Switzerland).

**Distribution:** In the Lengenbach quarry, Binntal, Valais, Switzerland [TL]. From the La Libertad mine, Quiruvilca, ??, Peru.

**Name:** For its similarity to baumhauerite.

**Type Material:** Museum of Victoria, Melbourne, M30980, South Australian Museum, Adelaide, Australia, G15547; The Natural History Museum, London, England, 1926,1654; Natural History Museum, Basel, Switzerland, L7228.

**References:** (1) Pring, A., W.D. Birch, D. Sewell, S. Greaser, A. Edenharter, and A. Criddle (1990) Baumhauerite-2a: a silver-bearing mineral with a baumhauerite-like supercell from Lengenbach, Switzerland. *Amer. Mineral.*, 75, 915–922. (2) Robinson, G. and D. Harris (1987) A baumhauerite-like mineral from Quiruvilca, Peru. *Mineral. Record*, 18, 199–201. [must??]