

**Crystal Data:** Tetragonal. *Point Group:* 422. Crystals, to 1 mm, have characteristic quadratic shape and are tabular on {001}, with {103}, {104}, {111}, and {116}. *Twining:* Rarely as penetration twins along (016).

**Physical Properties:** *Cleavage:* Perfect on {001}, distinct on {110}. *Tenacity:* Ductile to flexible in thin laminae. *Fracture:* n.d. Hardness = 3 VHN = 63 (52-72) (10 g load). D(meas.) = n.d. D(calc.) = 5.31

**Optical Properties:** Translucent on thin edges to opaque. *Color:* Reddish to gray; grayish white with a bluish tint and dark red internal reflection along cleavage cracks in reflected light. *Streak:* Reddish brown. *Luster:* Metallic in thick laminae. *Optical Class:* n.d.

R<sub>1</sub>-R<sub>2</sub>: (470) 30.5-32.3, (543) 29.6-30.8, (587) 28.7-29.7, (657) 26.3-28.0

**Cell Data:** Space Group: *P*4<sub>3</sub>22. *a* = 5.5229(4) *c* = 33.399(5) *Z* = 8

**X-ray Powder Pattern:** Lengenbach, Binntal, Switzerland.

2.77 (100), 1.960 (80), 1.679 (70), 1.598 (70), 1.274 (60), 3.19 (50), 1.664 (40)

<b>Chemistry:</b>	(1)
Tl	0.23
Ag	26.30
Cu	0.10
Pb	11.72
Cd	20.35
Zn	0.04
Fe	0.06
Mn	0.03
Sb	0.05
As	17.55
Cr	0.01
<u>S</u>	<u>24.04</u>
Total	100.48

(1) Lengenbach, Binntal, Switzerland; average of 5 electron microprobe analyses; corresponds to (Ag<sub>0.994</sub>Cd<sub>0.738</sub>Pb<sub>0.231</sub>Cu<sub>0.006</sub>Tl<sub>0.005</sub>Mn<sub>0.003</sub>Fe<sub>0.004</sub>Zn<sub>0.002</sub>Cr<sub>0.001</sub>)<sub>Σ=1.984</sub>(As<sub>0.955</sub>Sb<sub>0.003</sub>)<sub>Σ=0.958</sub>S<sub>3.058</sub>.

**Occurrence:** In cavities in hydrothermally altered dolostone, likely formed at a late stage.

**Association:** Galena, jordanite, pyrite, sphalerite, lengenbachite, hatchite.

**Distribution:** From Lengenbach, Binntal, Switzerland.

**Name:** Alludes to the characteristic crystal habit.

**Type Material:** Natural History Museum in Basel, and at the Mineralogical Institute, University of Basel, Switzerland.

**References:** (1) Graeser, S., W. Lustenhouwer, and P. Berlepsch (1998) Quadratite Ag(Cd,Pb)(As,Sb)S<sub>3</sub> - A new sulfide mineral from Lengenbach, Binntal (Switzerland). Schweiz. Mineral. Petrogr. Mitt, 78, 489-494. (2) (2000) Amer. Mineral., 85, 264 (abs. ref. 1). (3) Bindi, L., P.G. Spry, P. Bonazzi, E. Makovicky, and T. Balić-Žunić (2013) Quadratite, AgCdAsS<sub>3</sub>: Chemical composition, crystal structure, and OD character. Amer. Mineral., 98, 242-247.