

**Crystal Data:** Tetragonal. *Point Group:*  $\bar{4} 2 m$ . As irregular grains, to 1 mm, between barite crystals.

**Physical Properties:** *Cleavage:* None. *Fracture:* Irregular. *Tenacity:* Brittle. VHN = 111-132, 124 average (50 g load). Hardness = 2-2.5 D(meas.) = n.d. D(calc.) = 5.989

**Optical Properties:** Opaque. *Color:* Red, yellowish white in reflected light, internal reflections weak, deep red. *Streak:* Orange. *Luster:* Metallic to submetallic. *Pleochroism:* None. *Anisotropism:* Weak, gray to bluish.

*Optical Class:* n.d.

R<sub>1</sub>-R<sub>2</sub>: (471.1) 29.0-29.4, (548.3) 27.6-28.3, (586.6) 26.1-26.5, (652.3) 24.2- 24.6

**Cell Data:** *Space Group:*  $I\bar{4} 2m$ .  $a = 10.1386(6)$   $c = 11.3441(5)$   $Z = 4$

**X-ray Powder Pattern:** Monte Arsiccio mine, Apuan Alps, Tuscany, Italy. 3.025 (vs), 2.518 (s), 4.195 (m), 3.542 (m), 2.636 (m), 5.04 (w), 2.126 (w)

Chemistry:	(1)
Cu	0.78
Ag	8.68
Zn	0.47
Fe	0.04
Hg	35.36
Cd	0.20
Tl	18.79
As	10.77
Sb	4.75
S	18.08
Se	0.07
Total	97.99

(1) Monte Arsiccio mine, Italy; average of 5 electron microprobe analyses; corresponding to (Ag<sub>0.87</sub>Cu<sub>0.13</sub>Fe<sub>0.01</sub>) $\Sigma=1.01$ (Hg<sub>1.91</sub>Zn<sub>0.08</sub>Cd<sub>0.02</sub>) $\Sigma=2.01$ Tl<sub>1.00</sub>(As<sub>1.56</sub>Sb<sub>0.42</sub>) $\Sigma=1.98$ S<sub>6.12</sub>Se<sub>0.01</sub>.

**Polymorphism & Series:** Forms a series with routhierite.

**Occurrence:** In a lens of microcrystalline barite near the contact between schist and pyrite-rich dolostone. The assemblage interpreted as crystallized from a sulfide melt during greenschist-facies metamorphism.

**Association:** Protochabournéite, cinnabar, laffittite, pyrite, realgar, Hg-bearing sphalerite, stibnite, barite.

**Distribution:** From near the junction of the Sant'Olga tunnel and Farioli shaft, Monte Arsiccio mine, near Sant'Anna di Stazzema, Apuan Alps, Tuscany, Italy.

**Name:** For the mine that produced the first specimens.

**Type Material:** Natural History Museum, University of Pisa, Italy (# 19659), and the Natural History Museum, Università degli Studi di Firenze, Florence, Italy (# 3132/I).

**References:** (1) Biagioni, C., E. Bonaccorsi, Y. Moëlo, P. Orlandi, L. Bindi, M. D'Orazio, and S. Vezzoni (2014) Mercury-arsenic sulfosalts from the Apuan Alps (Tuscany, Italy). II. Arsiccioite, AgHg<sub>2</sub>TlAs<sub>2</sub>S<sub>6</sub>, a new mineral from the Monte Arsiccio mine: occurrence, crystal structure and crystal chemistry of the routhierite isotypic series. *Mineral. Mag.*, 78(1), 101-117. (2) (2014) *Amer. Mineral.*, 99, 1806 (abs. ref. 1).