

**Crystal Data:** Monoclinic, pseudo-orthorhombic. *Point Group:* 2/m. As millimeter-sized compact masses.

**Physical Properties:** *Cleavage:* n.d. *Fracture:* Conchoidal to uneven. *Tenacity:* Brittle. Hardness = ~3.5 VHN = 218-229, 223 average (25 g load). D(meas.) = n.d. D(calc.) = 5.36

**Optical Properties:** [Opaque.] *Color:* Lead-gray; white with a slight yellow-bronze tint in reflected light. *Streak:* n.d. *Luster:* Metallic.

*Optical Class:* n.d. *Anisotropism:* Weak, in shades of gray to bluish gray.

R<sub>1</sub>-R<sub>2</sub>: (400) n.d.-35.0, (420) 36.4-35.3, (440) 36.0-35.9, (460) 36.1-34.7, (470) 36.4-34.8, (480) 36.6-35.1, (500) 36.4-34.8, (520) 36.1-34.3, (540) 35.3-33.8, (546) 35.1-33.5, (560) 34.8-33.0, (580) 35.2-33.1, (589) 35.0-32.9, (600) 34.4-32.9, (620) 33.7-32.3, (640) 33.1-31.9, (650) 32.4-31.8, (660) 32.5-31.5, (680) 32.4-31.6, (700) 31.7-30.9

**Cell Data:** Space Group: *P*2<sub>1</sub>/*c*. *a* = 19.0982(14) *b* = 17.0093(11) *c* = 13.0008(10)  $\beta$  = 90.083(4)° *Z* = 2

**X-ray Powder Pattern:** Monte Arsiccio mine, Stazzema, Apuan Alps, Tuscany, Italy. 3.406 (s), 3.277 (s), 2.885 (s), 2.055 (s), 1.788 (s), 3.719 (ms), 2.740 (ms)

Chemistry:	(1)	(2)
Cu	1.06	0.92
Ag	11.25	10.89
Tl	0.45	
Hg	2.76	2.89
Pb	19.95	20.93
As	1.55	
Sb	40.45	42.16
S	22.23	22.21
Total	99.70	100.00

(1) Sant'Olga tunnel, Monte Arsiccio mine, Stazzema, Apuan Alps, Tuscany, Italy; average of 7 electron microprobe analyses, Pb and (As + Sb) corrected by subtracting As and Tl according to the substitutions  $As^{3+} = Sb^{3+}$  and  $Tl^{+} + Sb^{3+} = 2 Pb^{2+}$ ; corresponds to  $Cu_{1.14}Ag_{7.12}Tl_{0.15}Hg_{0.94}Pb_{6.57}(Sb_{22.68}As_{1.41})_{\Sigma=24.09}S_{47.33}$ . (2)  $CuHgAg_7Pb_7Sb_{24}S_{48}$ .

**Polymorphism & Series:** Andorite sub-series, lillianite homologous series.

**Occurrence:** In a hydrothermal quartz vein in metadolostone.

**Association:** Sphalerite, stibnite, boscardinite, protochabournéite, routhierite, Hg-rich tetrahedrite.

**Distribution:** From the Sant'Olga tunnel, Monte Arsiccio mine, Stazzema, Apuan Alps, Tuscany, Italy.

**Name:** Honors Andrea Dini (b. 1966) for his contribution to the knowledge of magmatic activity in the Tuscan Magmatic Province and the related ore deposits, particularly, the geology and mineralogy of Hg ores of the Apuan Alps.

**Type Material:** Natural History Museum, University of Pisa, Italy (19688).

**References:** (1) Biagioni, C., Y. Moëlo, P. Orlandi, and W.H. Paar (2018) Lead-antimony sulfosalts from Tuscany (Italy). XXIII. Andreadiniite,  $CuAg_7HgPb_7Sb_{24}S_{48}$ , a new oversubstituted (Cu,Hg)-rich member of the andorite homeotypic series from the Monte Arsiccio mine, Apuan Alps. Eur. J. Mineral., 30(5), 1021-1035. (2) (2020) Amer. Mineral., 105(7), 1108-1109 (abs. ref. 1).