

Crystal Data: Monoclinic. *Point Group:* 2/m. As fibrous crystals, to 0.4 mm., in divergent fibrous aggregates. *Twinning:* Twinning on (001).

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* n.d.
Hardness = n.d. D(meas.) = n.d. D(calc.) = 6.15

Optical Properties: Opaque. *Color:* Silver-gray; white in reflected light. *Streak:* n.d.
Luster: Metallic.

Optical Class: Biaxial (+). *Anisotropism:* Weak.
R: (470) 34.25, (546) 32.95, (589) 32.60, (650) 31.05

Cell Data: *Space Group:* C2/c. *a* = 8.371(2) *b* = 45.502(9) *c* = 27.273(6) β = 98.83(3)° *Z* = 4
Frequent twins and disordered domains in the structure were observed.

X-ray Powder Pattern: La Fossa crater, Vulcano Island, Italy.
2.07 (100), 3.34 (80), 2.85 (80), 2.69 (80), 2.10 (70), 3.17 (60), 2.17 (60)

Chemistry:	(1)	(2)
Pb	40.92	43.86
Bi	28.30	24.33
As	8.38	8.72
Sn	1.60	2.51
Tl	0.06	
S	18.28	18.33
Se	0.18	
Cl	1.85	2.25
Br	0.24	.
Total	99.81	100.00

(1) La Fossa crater, Vulcano Island, Italy; average of 12 electron microprobe analyses, corresponding to Pb_{18.95}Sn_{1.30}(Bi_{12.99}As_{10.73}Tl_{0.03}) $\Sigma=23.75$ (S_{54.71}Se_{0.22}Cl_{5.00}Br_{0.29}) $\Sigma=60.22$.

(2) Pb₂₀Sn₂(Bi,As)₂₂S₅₄Cl₆.

Occurrence: As encrustations around fumaroles (400-600°C) in an active volcanic crater.

Association: Bismuthinite, lillianite, kirkiite, heyrovskýite, galena.

Distribution: Fumarole FF (and others), La Fossa crater, Vulcano Island, Italy.

Name: Honors Filippo Vurro, (b. 1940), Professor of mineralogy at the University of Bari, Italy, and specialist in the mineralogy and geochemistry of modern volcanic deposits.

Type Material: Mineralogical museum, University of Bari, Italy, (6/nm).

References: (1) Garavelli, A., N.N., Mozgova, P., Orlandi, E., Bonaccorsi, D., Pinto, Y., Moëlo, and Y.S. Borodaev, (2005) Rare sulfosalts from Vulcano, Aeolian Islands, Italy. VI. Vurroite, Pb₂₀Sn₂(Bi,As)₂₂S₅₄Cl₆, a new mineral species. *Canadian Mineralogist*, 43, 703-711.

(2) Pinto, D., E. Bonaccorsi, T. Balić-Žunić, and E. Makovicky (2005) The crystal structure of vurroite, Pb₂₀Sn₂(Bi,As)₂₂S₅₄Cl₆: OD-character, polytypism, twinning, and modular description. *Amer. Mineral.*, 93, 713-727. (3) (2005) *Amer. Mineral.*, 90, 1949-1950 (abs. ref. 1).