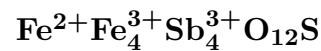


Apuanite



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Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Very rarely as crystals, prismatic, thick tabular on {001} and bounded by {110}, {112}, and {114}; commonly massive.

Physical Properties: *Cleavage:* Perfect on {110}. *Hardness* = n.d. *VHN* = 240–480 (20 g load). *D*(meas.) = 5.33 *D*(calc.) = [5.22]

Optical Properties: [Opaque.] *Color:* Black. *Luster:* Metallic.
Optical Class: Uniaxial.

R_1 – R_2 : (470) 19.1–20.8, (546) 21.9–19.6, (589) 21.6–18.4, (650) 19.6–16.9

Cell Data: *Space Group:* $P4_2/mbc$. $a = 8.372(5)$ $c = 17.974(10)$ $Z = 4$

X-ray Powder Pattern: Buca della Vena mine, Italy.

3.168 (100), 1.922 (47), 2.957 (43), 1.647 (30), 2.646 (23), 2.434 (17), 5.90 (15)

Chemistry:

	(1)	(2)
Fe ₂ O ₃	26.88	32.25
As ₂ O ₃	3.48	
Sb ₂ O ₃	53.82	58.87
FeO	7.04	7.26
ZnO	0.62	
S	2.70	3.24
–O = S	1.35	1.62
Total	93.19	100.00

(1) Buca della Vena mine, Italy; by electron microprobe, Fe²⁺:Fe³⁺ from crystal-structure analysis; corresponds to Fe_{1.04}²⁺Zn_{0.08}Fe_{3.57}³⁺(Sb_{3.91}³⁺As_{0.37}³⁺)_{Σ=4.28}O₁₂S_{0.89}. (2) Fe²⁺Fe₄³⁺Sb₄O₁₂S.

Occurrence: In an iron deposit in barite formed by low-grade metasomatic processes at the contact between phyllites and dolostones.

Association: Versiliaite, barite, magnetite, hematite, pyrite.

Distribution: In the Buca della Vena mine, northeast of Stazzema, Apuan Alps, Tuscany, Italy.

Name: For the Apuan Alps, Italy, where it was found.

Type Material: University of Pisa, Pisa, Italy, 3202; National School of Mines, Paris, France.

References: (1) Mellini, M., S. Merlino, and P. Orlandi (1979) Versiliaite and apuanite, two new minerals from the Apuan Alps, Italy. *Amer. Mineral.*, 64, 1230–1234. (2) Mellini, M. and S. Merlino (1979) Versiliaite and apuanite: derivative structures related to schafarzikite. *Amer. Mineral.*, 64, 1235–1242. (3) Mellini, M., M. Amouric, A. Baronnet, and G. Mercuriot (1981) Microstructures and nonstoichiometry in schafarzikite-like minerals. *Amer. Mineral.*, 66, 1073–1079.