

Bianchiniite**Ba₂(Ti⁴⁺V³⁺)(As₂O₅)₂OF**

Crystal Data: Tetragonal. *Point Group:* 4/m 2/m 2/m. As square tabular crystals flattened on {001} to 1 mm.

Physical Properties: Cleavage: Perfect on {001}. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.863

Optical Properties: Transparent. *Color:* Brown, gray in reflected light with orange-yellow internal reflections. *Streak:* Brownish. *Luster:* Vitreous.

Optical Class: Weakly bireflectant. *Anisotropism:* Very weak in shades of grey. Non-pleochroic. R₁-R₂: (470) 5.0-5.8, (546) 5.7-6.5, (589) 5.7-7.0, (650) 5.2-6.3

Cell Data: *Space Group:* I4/mcm. *a* = 8.7266(4) *c* = 15.777(7) *Z* = 8

X-ray Powder Pattern: Monte Arsiccio mine, Stazzema (LU), Apuan Alps, Tuscany, Italy. 3.144 (vs), 3.826 (w), 2.916 (w), 2.789 (w), 2.598 (w), 2.119 (w), 2.072 (w)

Chemistry:	(1)	(2)
TiO ₂	10.34	9.20
V ₂ O ₃	3.77	8.63
Fe ₂ O ₃	3.76	
As ₂ O ₃	44.36	45.57
Sb ₂ O ₃	0.22	
SrO	0.45	
BaO	34.79	35.32
PbO	0.28	
F	1.77	2.19
<u>-O = F</u>	<u>0.75</u>	<u>0.92</u>
Total	98.99	100.00

(1) Monte Arsiccio mine, Stazzema (LU), Apuan Alps, Tuscany, Italy; average electron microprobe and Raman spectroscopic analyses; corresponds to (Ba_{2.00}Sr_{0.04}Pb_{0.02})_{Σ=2.06}(Ti⁴⁺_{1.14}V³⁺_{0.44}Fe³⁺_{0.42})_{Σ=2.00}[(As_{3.96}Sb_{0.02})_{Σ=3.98}O₁₀](O_{1.18}F_{0.82})_{Σ=2.00}. (2) Ba₂(Ti⁴⁺V³⁺)(As₂O₅)₂OF.

Occurrence: Probably related to the circulation of As-rich hydrothermal fluids during the tectono-metamorphism of a pyrite ± baryte ± iron-oxide ore deposit in meta-dolostone.

Association: Baryte, “halophane”, “chlorite”, galena, siderite, aragonite.

Distribution: From the Sant’Olga level, Monte Arsiccio mine, near Sant’Anna di Stazzema, Stazzema (LU), Apuan Alps, Tuscany, Italy.

Name: Honors mineral collectors Andrea *Bianchini* (b. 1959) and Mario *Bianchini* (b. 1962) who provided specimens for studies of the mineralogy of pyrite ± baryte ± iron-oxide ore deposits from the Apuan Alps.

Type Material: Natural History Museum, University of Pisa, Italy (19892).

References: (1) Biagioni, C., M. Pasero, U. Hålenius, and F. Bosi (2021) Bianchiniite, Ba₂(Ti⁴⁺V³⁺)(As₂O₅)₂OF, a new diarsenite mineral from the Monte Arsiccio mine, Apuan Alps, Tuscany, Italy. Mineral. Mag., 85, 354-363.