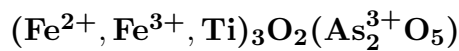


**Fetiasite**

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. Crystals are tabular on {100}, elongated along [010] or [001], showing {100}, {011}, {001}, to 2 cm; in radial to globular aggregates.

**Physical Properties:** *Cleavage:* {100}, perfect. *Fracture:* Uneven to conchoidal. Hardness = ~5 VHN = 438–490 (50 g load). D(meas.) = 4.6(1) on altered material. D(calc.) = 4.74–4.80

**Optical Properties:** Opaque. *Color:* Brown to black, red-brown when altered; creamy white in reflected light. *Luster:* Metallic to semimetallic.

*Optical Class:* Biaxial. *Anisotropism:* Noted.

R<sub>1</sub>–R<sub>2</sub>: (470) 15.4–16.0, (546) 15.3–15.8, (589) 14.8–15.2, (650) 14.2–15.0

**Cell Data:** *Space Group:* P2<sub>1</sub>/m. *a* = 10.595–10.616 *b* = 3.242–3.252 *c* = 8.931–8.945  $\beta$  = 108.89°–108.95° *Z* = 2

**X-ray Powder Pattern:** Pizzo Cervandone, Italy.

2.749 (100), 2.811 (94), 2.391 (85), 2.985 (67), 1.779 (48), 1.709 (35), 1.754 (32)

**Chemistry:**

	(1)	(2)
TiO <sub>2</sub>	10.09	11.17
Fe <sub>2</sub> O <sub>3</sub>	17.13	17.93
As <sub>2</sub> O <sub>3</sub>	46.95	46.76
FeO	23.12	24.23
MnO	1.25	0.89
Total	98.54	100.98

(1) Pizzo Cervandone, Italy; by electron microprobe, average of seven analyses; Fe<sup>2+</sup>:Fe<sup>3+</sup> from crystal-structure analysis, total Mn as MnO, As<sup>3+</sup> confirmed by IR; corresponding to (Fe<sub>1.38</sub><sup>2+</sup>Fe<sub>0.92</sub><sup>3+</sup>Ti<sub>0.54</sub>Mn<sub>0.08</sub>)<sub>Σ=2.92</sub>O<sub>2</sub>(As<sub>2</sub>O<sub>5</sub>). (2) Binntal, Switzerland; by electron microprobe, average of ten analyses; corresponding to (Fe<sub>1.40</sub><sup>2+</sup>Fe<sub>0.93</sub><sup>3+</sup>Ti<sub>0.58</sub>Mn<sub>0.05</sub>)<sub>Σ=2.96</sub>O<sub>2</sub>(As<sub>2</sub>O<sub>5</sub>).

**Occurrence:** Deposited from arsenic-bearing solutions in Alpine fissures in gneisses of the upper greenschist to lower amphibolite facies.

**Association:** Asbecasite, cafarsite, cervandonite, anatase, chlorite, feldspar, mica, quartz.

**Distribution:** On the east flank of Pizzo Cervandone, Alpe Devero, Val d'Aosta, Piedmont, Italy. At Gorb, Binntal, Valais, Switzerland.

**Name:** For *Fe*, *Ti*, *As* in its composition.

**Type Material:** Natural History Museum, Basel; Mineralogical Institute, University of Basel, Switzerland.

**References:** (1) Graeser, S., H. Schwander, F. Demartin, C.M. Gramaccioli, T. Pilati, and E. Reusser (1994) Fetiasite (Fe<sup>2+</sup>, Fe<sup>3+</sup>, Ti)<sub>3</sub>O<sub>2</sub>[As<sub>2</sub>O<sub>5</sub>], a new arsenite mineral: its description and structure determination. *Amer. Mineral.*, 79, 996–1002.