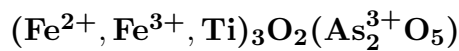


Fetiasite

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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.

R₁–R₂: (470) 15.4–16.0, (546) 15.3–15.8, (589) 14.8–15.2, (650) 14.2–15.0

Cell Data: *Space Group:* P2₁/m. *a* = 10.595–10.616 *b* = 3.242–3.252 *c* = 8.931–8.945 β = 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 ₂ | 10.09 | 11.17 |
| Fe ₂ O ₃ | 17.13 | 17.93 |
| As ₂ O ₃ | 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; Fe²⁺:Fe³⁺ from crystal-structure analysis, total Mn as MnO, As³⁺ confirmed by IR; corresponding to (Fe_{1.38}²⁺Fe_{0.92}³⁺Ti_{0.54}Mn_{0.08})_{Σ=2.92}O₂(As₂O₅). (2) Binntal, Switzerland; by electron microprobe, average of ten analyses; corresponding to (Fe_{1.40}²⁺Fe_{0.93}³⁺Ti_{0.58}Mn_{0.05})_{Σ=2.96}O₂(As₂O₅).

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 (Fe²⁺, Fe³⁺, Ti)₃O₂[As₂O₅], a new arsenite mineral: its description and structure determination. *Amer. Mineral.*, 79, 996–1002.